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CENTRAL INTELLIGENCE AGENCY

## INFORMATION REPORT

C-O-N-F-I-D-E-N-T-I-A-L

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COUNTRY	North Korea	REPORT	
SUBJECT	<input type="text"/> Report on the Electrical Industry in North Korea	DATE DISTR.	16 January 1957
DATE OF INFO.	<input type="text"/>	NO. OF PAGES	1
PLACE ACQUIRED	<input type="text"/>	REQUIREMENT NO.	RD
		REFERENCES	

*Reel # 82*

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A detailed report on the electrical industry in North Korea 

The report consists of 176 pages and is divided into the following sections:

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2. Outline of Electrical Industry in North Korea
3. Transmissions and Transformer Facilities
4. Transformer Facilities
5. Power Plant Facilities
6. Curvelines of Water Capacity at Each Reservoir
7. Chart of Transmission Lines as of 31 December 1947
8. Supply of Electricity
9. Power Distributing Office, Chinnamp'o
10. Conditions at the Kangso Electric Machine Shop
11. Conditions at the P'yongyang Electric Bulb Factory
12. Regulations Governing Supply and Demand of Electricity

Attachment:  as described above. (Unclassified).

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STATE	ARMY	NAVY	AIR	FBI	AEC						
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(Note: Washington Distribution Indicated By "X"; Field Distribution By "#") Form No. 51-61. January 1953

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#### Foreword

Upon arrival in Pyŏngyang, Your Commission had immediately mapped out a plan to start inquiries into the electrical industry in North Korea. But we found it exceedingly difficult to execute our plan due to the following facts:

- (1) Social order was in chaos and confusion.
- (2) All industrial plants were controlled by members of the Labor Party, who had occupied over 80 percent of the factory employees.



- (3) By the end of September or on the eve of their defeat, the Communists had secretly drove away a score of trucks full of important documents and charts from the various factories toward Kanggye, Supung, and other places after having burnt remaining records, including private papers, in order to destroy all basic data that were necessary to our work. Collection of data from any other sources was impossible.
- (4) The Communist leaders threatened all staff workers and factory employees, numbering hundreds of thousands, to move to Kanggye and Manpochin with their families on foot.
- (5) A group of conscientious men, aloof from Red politics, returned from their hiding shelters, but because of the harsh control of peace squads, and the threatening propaganda of the Communist puppets, they contributed nothing to our work.
- (6) A large number of ambitious local people attempted to monopolize the electrical industry, and quarrelled among themselves. Thus the men from the Provincial Power Distributing Office, the City Power Distributing Office, the West Pyongyang Power Transmission Station, and the Municipal Electric Business Station stood face to face playing tricks against and pouring slander on each other, and interfered with the local electrical engineers in an effort to sabotage cooperation with Your Commission.
- (7) Another group, known as professional brokers and veteran appropriators, attempted to operate the electrical industry by themselves, and turned a deaf ear to our call for cooperation. Under these circumstances, we thought it best to restore the old Power Control Bureau, but it was infeasible to reestablish a unified organization by breaking up these local groups.

We finally felt it absolutely necessary to see a strong counter measure he formulated by the related ministry of South Korea in order to firmly establish a national policy of electricity as the national operation of the electrical industry in North Korea carried marked political color in all fields and resulted to a backward condition in structure and personnel administration.

At the request of the Electric Commission of the UN Armed Forces, we were able to decide on the field for construction of a power plant with the assistance of five engineers from the old Electric Control Bureau by 10 October in order to secure current for pumping drinking water in Pyŏngyang. Afterwards, we also cooperated with the same UN Commission in the survey of suitable locations to install generators at independent power plants such as the Japan Corn Products Company and the "Kanebo" Factory in Pyŏngyang, and the Powership in Chinnampo, and in the restoration of power transmission lines which will induce current to all directions in Pyŏngan-namdo.

We regret to say that our survey has made only a limited progress, because all major electrical facilities were mostly installed for them in the northern areas still unliberated.

This report fails to become a complete source material, because we had to make survey hastily in a period of great confusion, but we hope that it can be of some use in the establishment of a definite plan for electrical industry in North Korea.

In conclusion, we should add that this survey was conducted by a three-men party-Mr. YI T'ae-chun, Bureau of Electricity, Department of Commerce and Industry; Mr KIM Hong-sik, Korea Power Supply Company (Chosŏn Chŏnŏp) ; Mr YUN Chae-sin, Seoul Electric Company (Kyeongjŏn or Keiden).

20 November 1950

Outline of Electrical Industry

in

North Korea

## Operation of Electrical Industry in North Korea

After the liberation of August 1945, the People's Committee of North Korea combined the generating facilities of the old Korea Power Supply Company (Chosŏn Chŏnŏp) together with the receiving and distributing equipments of two other companies, ie, the North Korea Electric Union (Pukŏn Haptong), and the West Korea Electric Union (Sŏsŏn Haptong). Then this committee nationalized the operation of the electrical industry under the control of the Office of Electricity, Bureau of Industry, and reorganized its structure into three independent plants - Power Generation, Power Transmission, and Power Distribution.

To generate and distribute electricity, the People's Committee carried out the following plan:

- (1) Establishing the Hŏchŏn-gang Power Department by combining the two plants at Hŏchŏn-gang and Puryŏng in order to manage generation and transmission of electricity in the North-eastern area through the control of chief transformer substations of power plants other than those with a capacity of transmitting above 110 KV, and all independent power plants of home use at special factories located in that area.
- (2) Establishing the Changjin-gang and the Pukhŏng-gang Power Department to manage generation and transmission of electricity in the Hŏngnam area.
- (3) Establishing the North-east Power Distributing Department, with branches at Chŏngjin, Najin, Pukhŏng, Tanchŏn, Hamhŏng, and Wŏnsan to manage operation of all facilities for transmitting, transforming, and distributing electricity above 66 KV in the North-East Area and in one part of Kangwŏn-do.

- (4) Establishing the Central Power Supply Department by combining both undertakings of the Kungangsan and the Hwachŏn Power Plants to manage generation, transmission, and distribution electricity for the Kangwŏn-do Area.
- (5) Establishing an independent Sup'ung Power Department at the Sup'ung Power Plant to manage generation of electricity in the North West Area.
- (6) Establishing the West Power Transmission Department as a controlling organ (with headquarters at the old Korea Power Supply Company's Pyŏngyang Power Transmission Office) to supply electricity, generated in the North-East Area and in Sup'ung, to operate high voltage transmission lines and transformer substations which will supply electricity to South Korea, and to manage operation of high voltage transmission and ~~transformation~~ transformation facilities in the North East and North West.
- (7) Establishing the North-West Power Distributing Department, with branches at Pyŏngyang, Pyongan-namdo, Namp'o, Kanggye, Sinŭiju, and Haeju to Manage Operation for Transmission, transformation, and distribution of electricity below 66 KV,

As a whole, the electrical industry of North Korea was operated by the above system from 1946 to 1948 (September). But the following independent power plants, with their transmission lines and transformer substations, were placed under the direct control of several specialized organs at the Bureau of Industry.

Names of independent power plants; the Hŭngnam Fertilizer Factory; the Aoji Synthetic Oil Factory; The Sŏngjin Steel Mill; the Chŏngjin Textile Mill;

the Hwanghae Iron Mill; the Kangsŏn Steel Mill; the Pukchŏng Machine Shop; the Nampŏ Refinery; the Nampŏ Light Metal Factory; and other power plants at important factories and mines. These national industrial plants were primarily controlled by the office of Electricity, which saw to it that contracts were signed with other factories and industrial plants and electric power was supplied.

By way of carrying on operation, each plant also exercised police control for electric security in addition to its administrative duties for business enterprise, while at the same time, the office of Electricity made appropriations for each plant with the receipt of the Electric Distribution Department.

The Office of Electricity consists of two departments - Electric Power and Electrical Industry. In the field of electrical industry, the old West Union Electric Repair Shop was expanded into an independent plant, called "The Pyŏngyang Electric Machine Plant, where general repairs of electric tools as well as production of everyday electrical supplies were done,

In the meantime, the Kangsŏ Shop of the old Korea Iron Mill was also enlarged into an Electric Mill, where they started production of everyday electrical supplies.

The operation structure of electric power is as follows:

Bureau of Industry -

Office of Electricity

Director

Vice-Director

Department of Power Generation

Power Generation Section

Engineering Section Communications Section

Department of Power Transmission and Power Distribution.

Transformer Section

Power Transmission Section

Electric Power Section

D Department of Electrical Industry

Industrial Section

Tools and Machinery Section

Department of Planning

Basic Construction Section

Fund Planning Section

Planning Section

Department of Accounting

Budget Section

Accounts Section

Department of Business Operation

Business Operation Section

Material Section

Department of Staff Workers

Labor Section

Staff Workers Section

General Affairs Section

Department of Sup'ung Power Generation

Department of Hŏchŏn-gang Power Generation

Department of Changjin-gang Power Generation

Department of Puchŏn-gang Power Generation

Department of Central Electrical Industry

Hwachŏn Power Plant

Kŭmgangsan Power Plant

Chŏrwŏn Office

Department of North-East Power Distribution

Chŏngjin Branch

Hamhŭng Branch

Wŏnsan Branch

Pukchŏng Branch

Najin Branch

Tanchŏn Branch

Department North-West Power Distribution

Sinŭiju Branch

Pyŏngan-namdo Branch

Pyŏnggang Branch

Namp'o Branch

Haeju Branch

Kanggye Branch

Department of North-West Power Transmission

Pyŏngyang Transfomer Substation

Choch'on Transformer Shbstation

Namp'o Transformer Substation

Tasado Transformer Substation

Unsan Transformer Substation

Namch'on Switch Station

Sŏngyang Switch Station

Pyŏngyang Streetcar Business Office

Pyŏngyang Electric Bulb Factory

Pyŏngyang Electric Machine Plant

Kangsŏ Electric Machine Plant

\* \* \*

They collected scrap silicon steel plates, and used them in the production of pole transformers ( 5 or 6 single-phase transformers of 10 KWH - Japanese Production Type).

Since no Silicon Steel is produced in North Korea, they transported 30,000 KVA iron cores of major transformers at the Tongnogang Power Plant of the old Korea Power Supply Company, which had imported them via Shibaura from Mecca (sic), but due to improper storage, and leakage of water, these articles gathered rust.



Sometime afterwards, these were transported to Pyŏngyang and were wasted in the production of crude transformers and infant tools.

By and by, they found it difficult to install transformers at the Tongno-gang Power Plant to meet the demands of the Two Year People's Economic Plan (1949 - 50). Therefore, they ordered transformers from the Soviet Union.

Judging from these facts, it is apparent that production of electrical Supplies in North Korea was economically unprofitable and technically impossible, if not only a propaganda. Then, for the production of electric bulbs, they took over private Plants, including the Taemyŏng Electric Bulb Factory, together with several glass factories of private undertaking, and they established a national electric-bulb plant where they produced about 500 electric bulbs of the Japanese type by using filaments that had been kept in stock during the Japanese regime. In the meantime, they struggled in raw materials for glass works from South Korea via blackmarketeers, and produced some crude electric bulbs with 100 hours of life. By controlling this electric bulb plant, they were able to operate the gas supply works in Pyŏngyang.

Next, for the operation of streetcars in Pyŏngyang, they separated the streetcar Section from the old West Korea Electric Company by changing its name as the Pyŏngyang Streetcar Business Office, and ordered it to take over the whole business of running the streetcars.

The electrical industry was operated by the above system on the basis of a separate account. Accordingly, the National Treasury disbursed only such funds as deemed absolutely necessary for the investment in the expansion of production, with a definite burden of output to satisfy the standard consumption, which resulted in the guarantee of quantity rather than quality. However, they failed to accomplish the original plan. For example, many industrial plants, including the Kangsŏ Electric Machine Plant, proved to be a losing business and had to cover their red letter with the receipt from the Department of Electric Power.

Immediately after the liberation, all Japanese engineers left power plants, but up to the birth of the People's Republic the Office of Electricity continued operating the electrical industry in North Korea, except in Hamgyŏng-bukto where the electrical facilities had suffered the heaviest damage during the Korean War.

New Installation:

3 (Transformers?)

1 (Transformer?) of 5,000 KVA at the 2nd Generator, Changjin-gang Power Plant; 28 Km. Transmission Line (66 KV) between Changjin-gang and Hamhŭng; 3 (Transformers?) of 750 KVA at the 2nd Substation, 1 (Transformer?) of 5,000 KVA Hamhŭng;

2 (Transformers?) Of 4,000 KVA at the 2nd Substation, Ch'ŏngjin;

Erection of a new substation with one transformer of 110 KV - 40,000 KVA, and one transformer of 12,500 KVA at Kilchu Paper Mill;

4 Km. Transmission Line (110 KV), and one transformer of 110 KV - 34,000 KVA at Yongsŏng Substation;

In addition, 30 old substations, with transformers of medium and small sizes, were erected in other places to use electric power.

\* \* \*

To supply more electric power to Wŏnsan and Kangwŏn-do areas, they started erecting, in September 1946, a new substation by assembling a three-phase transformer (154 KV, 66 KV, 22 KV - 40,000 KVA), which had arrived via Shibaura from Mecca (sic) for the construction of a light metal factory (Sumitomo) at Munpyŏng. But hardly the assembling of the transformer was finished in November of the same year before the the Soviet Army carried off this transformer of 40,000 KVA, interrupting the construction of the substation in question.

It was not until June 1947 that another three-phase transformer (154 KV, 66 KV - 15,000 KVA) was transported from Kanggye (with it had been removed from Unsan during the Korean War), and was installed in Munpyong after having reproduced its rusted iron core, and assembled all its dismantled parts. This was a great Success for the supply of more electric power, and for the establishment of a new plan connecting the two power supply systems - Hwachŏn and Changjin-gang.

To keep a balance of water level at reservoirs in the North East, the Hŏchŏn-gang system was greatly limited in generation of power. Naturally, it paralysed the reception of electricity at the two substations (220 KV) - in Chŏngjin and in Yonghŭng, and the restoration of a transformer (220 KV - 100,000 KVA) at the Chŏngjin Substation was urgently required. Therefore, a spare transformer of 100,000 KVA was moved from Chinnampŏ to Chŏngjin, where its installation work was commenced in September 1947 and was completed in November 1948. As a result, it was possible to normally supply current by 220 KV to areas, north of Chŏngjin, and by 110 KV to factories in Kilchu, Sŏngjin, and Aoji.

In the meantime, in order to increase generation of electricity at the Hŏchŏnggang system, the Hŭngnam substation was erected by using two transformers (200/11 KV- 80,000 KVA) at the East Hŭngnam Substation, and adding five circuit lines out of the already installed connecting line of 11,000 V, thus supplying an average 100,000 KW to the Hŭngnam Fertilizer Factory, while maintaining the balance of the water level by increasing generating at the Hŏchŏn-gang, and diminishing the same at the Puchŏn-gang.

The decayed water mill bucket on No. 1 Generator at the Puchŏn-gang Power Plant was replaced by a new bucket, produced in North Korea after liberation. But partly due to its uneven balance of weight to a dangerous point, and partly due to the necessity of supplying water for irrigation on the Hamhŭng Plain, this new bucket accomplished an insignificant working efficiency, and at normal times, it was only employed in a limited generation of power for the use of industrial plants in the Hŭngnam Area.

The transformer of 80,000 KVA at the Yonghŭng Substation, which had been receiving current from the Hŏchŏn-gang via the East Hŭngnam connecting line of 220 KV, was accidentally burnt during a filtering operation with insulator oil immediately after the liberation, and it was impossible to receive current from the Hŏchŏn-gang system. Therefore, it was decided to transport a three-phase transformer (220/33 KV - 70,000 KVA) from the Showa Denko, an old Japanese electric plant in Chinnampŏ, in order to have it installed at the Yonghŭng Substation, and they succeeded in recoiling the secondary electric pressure into 11,000 Kv, insulating taping, and assembling the whole set.

But, while installing the transformer tank and the oil pipe cooling apparatus, the test with water pressure ended in failure because of the weakness of the tank, and this test was not completed until 25 June 1950.

In the North West Area, work had also started to remove, add, and erect transformers following the increased production of electricity since 1946 up to 1947. Thus the Inhŭng Substation (10,000 KVA) is being expanded to supply more current to Pyŏngyang; the Central Substation at Sinŭiju (15,000 KVA) is being newly erected; the existing transmission line (22 KV) between Chochŏn and Taeharyŏng is being reinforced up to 66 KV; the transmission line (220 KV) between Sup'ung and Chochŏn has changed its route along the new basis of the Chŏngchŏn-gang from Yŏngmi-to Sukchŏn (17 Km.) The construction of the last mentioned project was started in April 1947 and was completed in October 1948.

In erecting new iron towers, they assembled old materials, which the Japanese had imported via Shibaura from Mecca (sic), although these were different from the existing materials in type and in the method of laying out the 1 elevated and ground cables. While, at the same time, various new installations

restorations, and improvements were accomplished at the No. 1 Substation (15,000 KVA), PYŏngyang, and at other power plants, major factories, and mines.

At this juncture, one event of political significance happened, i.e., in December 1945, the Soviet Army dismantled two generators and two transformers of 100,000 KVA, at the Sup'ung Poer Plant, and had them transported to the Soviet Union. In dismantling these equipments, they cut the shafts of the generators in the middle, and also cut the casings in the middle by using oxygen.

Since the Liberation up to the first part of 1948, the facilities for the production of electricity were restored, and the power generation during that period was reported as shown on the separate table. As for the use of electricity, the burden of the electric heat and the electric boiler in major industrial plants occupied the lions share of the power generated as compared with other uses at ordinary factories, including chemical plants.

In the cost accounting, the production of electricity was much cheaper than that of coal, and since the stopping of electric supply to South Korea, the rich hydro electric power was freely used in all fields in North Korea to prevent the flooding of reservoirs. As a result, disregarding the economic advantages in using coal, they invested large amounts of capital in the various electrical installments without paying attention to the conservation of electricity. Therefore, although the North Korean propaganda boasted low cost of electricity, it does not agree with facts. For instance, in the zinc refineries, the per ton consumption of electricity reached to 6,000-8,000 KWH as compared with 4,000 KWH, which is the basic volume of the past, while the managers at the industrial plants installed superfluous electrical apparatus under the pretext that electricity is only a minor item in the cost accounting, and thus wasted power in large amounts for their small productions.

The restoration period of 1946 - 1947 had past, and from 1948 they entered upon a new period of expansion of production, which naturally looked on electricity as one of the major problems. Therefore, early in 1948, the supply of electricity was much limited by cutting the electric heating at private homes in order to increase the same at industrial plants.

With the creation of the People's Republic, in the meantime, the Bureau of Industry was changed to the Ministry of Industry, and its several Offices to Bureaux under the new Ministry. Then North Korea was divided into two areas - the North-East and the North-West to facilitate the distribution of electricity, while the existing distributing branches were promoted as independent industrial plants in accordance with the new structure:

(As of November 1948)

Ministry of Industry -

Control Bureau of Electricity

Supung Power Department  
 Hŏchŏn-gang Power Department  
 Changjin-gang Power Department  
 Puchŏn-gang Power Department  
 Kangwŏn Power Department  
 Sonŭiju Power Distributing Dept.  
 Pyŏngnam Power Distributing Dept.  
 Haeju Power Distributing Dept.  
 Pyŏngyang Power Distributing Dept.  
 Kagggye Power Distributing Dept.  
 Nampŏ Power Distributing Dept.  
 Wŏnsan Power Distributing Dept.  
 Hamhŭng Power Distributing Dept.  
 Chŏngjin Power Distributing Dept.  
 Tanchŏn Power Distributing Dept.  
 Kangsŏ Electric Machine Plant.  
 Pyŏngyang Electric-Bulb Factory  
 Pyŏngyang Streetcar Business Office  
 North-West Electric Transmission Dept.

Remarks: The power distributing branches under the old Kangwŏn Power Department has been incorporated into the Wŏnsan Power Distributing Department, and the Pyŏngyang Electric Machine Plant into the Kangsŏ Electric Machine Plant.

## Electric Power Generated

## Year

1946	3,942,806,831 KWH
1947	5,576,798,716 KWH
1948	6,130,827,752 KWH
1949	5,942,121,340 KWH
1950 (End of May)	1,765,096,800 KWH (First Quarter)

## Supply to China (Average electric Power)

1946	510,985,742 KWH
1947	389,457,824 KWH
1948	545,333,361 KWH
1949	595,467,526 KWH
1950	220,112,441 KWA (First quarter)

Under this new structure, the business operation continued as before, and the independent industrial plants, engaged in the distribution of electricity has been able to control the security of electrical establishments, and to execute the general business with good effects.

To accomplish the People's Economic Plan of 1948, more than 1,000,000 KW of electric power was required by the various factories and mines. Therefore, a decision was published in order to prohibit the non-productive use of electricity. This decision was carried out most effectively from the second part of 1948 up to 1949, and even the industrial plants throughout North Korea had to replace their electric boilers for coal boilers since the first quarter of 1950, leaving a surplus of 100,000 KW. of electricity, and since the stopping of supply of electricity to South Korea an order was issued to the effect that the power generated at the Hwachon Substation be used at its maximum. Accordingly, on 20 November 1948, one circuit transmission line of 66 KW/ was erected between Sorubang and Wiik, a distance of 36 KM, and started supplying current at an average of 7,000 KW. or at a maximum of 10,000 KW. to all mines

in the areas of Wönsan and Iryöng.

To electrify railroads of the Pyöngyang-Wönsan Line and the Pyöngyang-Manpö Line, two sections between Yangdok and Chönsöng (52 KM/Ø, and between Kupyön and Koin (27KM.) were selected with a plan to instal electrical apparatus thereon by using four sets of mercury-vapor rectifiers transported from Gangnam and Pokkye (leaving only one set each at the original places); two rotary-converters transported from Yangjiri, Kümangsan whither they had been moved for safety; trolley wires kept in stock, imported from the USSR, and produced at the Söngjin Steel Mill, in addition to collected or home-made electrical parts such as metal fixtures, insulators, electric wires, and the supports for the instruments at the substations.

The Control Bureau of Electricity, Ministry of Industry, took charge of the design and the engineering operation for all installations of transmission lines and transformer substations, while the Bureau of Electricity, Ministry of Transportation laid out trolley wires. To assist the construction, more than a ten thousand people, including engineers, technicians, laborers, and office-workers, had been drafted a day during the whole process. Work commenced in September 1948, and completed in January 1949 in a bad condition, for haste made waste in many parts of the construction, which needed many repairs afterwards.

The greatest technical difficulty was the connection of trolley wires, and the equipment of filters for the prevention of obstruction to the induced communication lines, the detailed description of which is omitted, and we here only show the outline of results of this construction.

(1) Pyöngyang - Wönsan Line

- (a) New transmission facilities for the supply to current to the electric railroad.



Name of trans- mission Line	Section	Length	Number of Circuit lines	Electric Wire	Support	Wire Voltage
Söktang Trans- mission Line	Inpyögn- Söktang	18	1	Haed, bare copper 7/2.6	Wood	66 KV
Kangpyöng trans- mission Line	Inhüing Kwanpyöng	28	1	"	"	"
R.R Connection Transmission Line	Söktang- Kwanpyöng	27	1	"	"	"

## (b) Transformer Equipments

Name of Substation	Transformer	Mercury-Vapor Rectifier	Remarks
Söktang Spa Substation	66/22 KV 34 4,000 KVA x 2	PC 3,000 4,000 KVA x 2	Transported from Pokkey
Kwanpyöng Substation	66/22 KV 34 4,000 KVA x 2	PC v 3,000 4,000 KVA x 2	Transported from Sambang

## (2) Pyöngyang-Manpö Line

For transmission facilities, a substation, directly branching off from the existing Unsong Transmission system, has been established.

For transformer facilities, three transformers of 66/11 KV, 900 KVA, and two transformers of rotary deflectors and 11,000 VBC, 750 V with a capacity of 750 KVA, have been installed.

Since the electric locomotive is of 1,500 V, two rotary deflectors are directly attached at all times to haul the train more easily.

The filter equipments for the prevention of obstruction to the induced communication lines were produced at the Kangsö Electric Machine Plant as the transportation of these machines from Pokkey was impossible, and a new design was made to produce the flank balance resistors of 3,000 V, with direct current at the same plant, but there was a great loss of electric power in their making, for they used the water resistance.

As the flank feeding wire with direct current required a capacity of 3,000 A, two steel-core if aluminum wires (400 mm<sup>2</sup>) were used, and a suspension-type insulator (254 M/M) it also being used.

In this way, they had poured their energy into the electric railroad and saw its completion in four months by compulsory labor.

Under the tow year People's Economic Plan (1949 - 50) the Tongno-gang Power Plant Construction Office was established and work was immediately started for a basic construction with a view to generate about 20,000 KW. during the rainy season in July 1950. But, due to an urgent repair on the north apron of the Supung Dam under a Soviet, Plan, the Tongno-gang Construction dropped behind, and the transmission line construction (154 KV) ~~XXXX~~ between Hwachon and Munpyong was cancelled. Moreover, a 27 percent cut was announced on all repairs of the existing electrical facilities, and only 15,000 wood-poles, out of 30,000 poles planned, were produced.

In the meantime, war-damaged steel pipes, two generators of 8,600 KVA, and three transformers of 63/66 KV, 5733 KVA at No. 1 Power Station, Puryong, were completely restored in November 1948 (work started in September 1947) by new production and repair of machines, enabling generation of electricity once again. t Then a new plan was made to restore two more generators of 6,00 KVA at its No. 2 Power Station, and work started early in 1949, but the generators were so badly damaged that was ones, including shafts and iron cores, had to be produced at the Kangsŏ Machine Plant. The basic test with electricity was found good, but no test with its mechanical strength was made, because the shafts of the generators bent in S shape with the upper and lower thrust metals badly burnt, making it impossible to work, and up to June 1950 no perfect generation ~~xxx~~ of electricity had commenced.

Another important basis construction was the building of an iron railroad bridge, spanning the Tuman-gang to maintain a huge transportation strength between Korea and the Asiatic Soviet Russia across that frontier river, and work had already been undertaken.

In this connection, a substation was required to supply 2,000 KW of power for this gigantic engineering, 2,000 KW of power for revolving this iron bridge and railroad locomotives. - or a total of 4,000 KW to 5,000 KW of electricity. Accordingly, the Chŏkchi Substation changed its capacity of 22 KV into 66 KV, and work started in April 1950 to lay out 28 KM of transmission lines of 66 KV. But this project was suspended when they had proceeded with erecting 30 percent of poles for the transmission lines.

For the preparation of the Korean War, the expansion of production in all factories and mines was deemed necessary and especially the Soviet engineers made mine prospecting tours throughout North Korea in order to transport increased production of lead and monazite ores to the Soviet Union.

In consonance with the Soviet Plan, the North Korean regime issued a cabinet Decision to see that the equipment of substations for greater supply of current be executed with rapidity. Accordingly many transmission lines and transformer substations were erected at the Kyesaeng Mine, the Chŏlsan Mine, the Samchŏn Mine, the Vllim Mine, the Nagyŏn Mine, and the Sŏngchŏn Mine, and other lead producing mines.

During the year of 1950, more power installations supplying electricity for emergency use were urgently required, and the strengthening of generation and transmission activities was repeatedly called upon in order to utilize 100 percent of all electrical resources. Under these circumstances, reorganization of the Control Bureau of Electricity and its affiliated industrial plants was carried out so execute a more effective operation in all fields of electricity.

The revised structure is as follows:

Ministry of Industry-

Control Bureau of Electricity

Supung Power Department  
 Changjin-gang Power Department  
 Puchon-gang Power Department  
 Hockhon-gang Power Department  
 Puryong Power Department  
 Hwachon Power Department  
 Kumgangsang Power Department  
 West Transmission Department  
 East Transmission Department  
 /Pyongyang Distribution Department  
 Pyongan-namdo Distribution Department  
 Pyongan-bukto Distribution Department  
 Hwanghae-do Distribution Department  
 Chagang-do Distribution Department  
 Kangwon-do Distribution Department  
 Hamgyong-namdo Distribution Department  
 Hamgyong-bukto Distribution Department  
 Kangso Electric Machine Plant  
 Pyongyang Electric Bulb Factory  
 Pyongyang Street-car Business Office  
 Kangso Electrical Research Institute

It is to be noted that one distribution department was organized for each province as a unit as in the case of the administrative system; each generating system has become an independent organ; The transmission system has been divided into two departments - the East and the West; the transmission and transformer facilities of 11,000 KV. under the control of the former Distribution Department, have been transferred to each department of transmission and distribution; the Distribution Department controls only minor stations with less than 3,300 V, and chiefly executes business functions.

# Control Bureau of Electricity

## Director

### Chief Engineer:

- Generation Department
- Transmission Department
- Electrical Industry Department
- Basic Construction Department
- Central Distribution Department
- Oil and Fat Experimental Department
- Power Developing Department
- Central Communication Department
- Central Electricity Readjusting Department
- Central Electro-meter Inspection of Repair Department

### Vice-Director:

- Material Supply Department
- General Affairs Department
- Business Department
- Labor Department
- Staff Department
- Financial & Accounting Department Planning Department

The above is an outline of the electrical industry in North Korea up to 25 June 1950. After the outbreak of the Korean War all factories in North Korea were transferred to munition plants of manual labor, and the planned production had gradually decreased. Especially, following bombing of major factories at Hŭngnam, Sŏngjin, Chŏngjin, Chinnampo, Wŏnsan, etc., since 23 July, the total electric power of 700,000 KW or 800,000 KW had dropped to only 10,000 or 20,000 KW. by the middle of September of the same year. Therefore, in order to minimize the damage from bombing, more than 50 percent of the generators and transformer equipments at the power plants was dismantled and moved to other places of safety.

Because of severe bombing, however, the transmission lines of 220 KV between Supung and Chochon had suffered a big damage, and its reception of power had become impossible, and since the destruction of the Pyŏngyang Substation, the reception of 1954KV from Changjin-gang also became impossible, so it received only about 6,000 KW from Changjin-gang through the transmission line of 66 KV, and made limited supplies to the North-West Area.

By that time, all industrial plants in North Korea had been completely destroyed except a few factories where infant weapons were produced by manual labor. Moreover, the Supung transmission line of 220 KV was repeatedly bombed near Sinanju, and the Supung Power Plant supplied only about 8,000 KW to Tasato and (?) KW to China.

After five major factories at Hŭngnam were bombed out, and production activities in that area had been paralysed, the Puchŏn-gang and the Changjin-gang Systems were obliged to suspend generation, while only one generator of 40,000 KVA at No. 1 Power Station, Hŏchŏn-gang, continued its supply to the North-East and the North-West.

In other words, the generation facilities in North Korea, as a whole, had lost their capacity of production due to terrific bombing.

The following table shows bombing damages suffered by the principal power divisions:

<u>Locations</u>	<u>Equipments damaged</u>	<u>Capacity</u>	<u>Quantity</u>	<u>Stent of Damages</u>
Hŭngnam Power Plant	Principal Transports	KVA 50,000	7	Complete ruin; Repair impossible.
"	Rotary converters	,3,500	30	Seven repairable
Chŏngjin Sub-station	Transformer	100,000	1	
"	"	20,000	1	All burnt
"	"	15,000	1	Destroyed burnt
Pongung Sub-station	"	20,000	1	"
"	"	5,000	1	"
"	"	34,500	2	"
Sŏngjin Substation "		10,000	3	"
Yonghŭng Substation "		60,000	2	"
Aoji Substation	"	34,500	1	(Tank damaged by rifle bullets.
Chinnampŏ Substation	"	100,000	1	All burnt

Pyongyang Substation (No. 2)	Transformer	100,000	2	Parts burnt One repairable
Pyongyang Substation (No. 1)	"	15,000	6	All burnt there repairable
Kilchu Substation	"	3,333	1	Parts damaged by machine- gun bullets.
Puchon-gang Power Plant (No. 1)	Generators	36,000	2	Coil damaged in One; Casing damaged in one
"	Transformer	36,000	1	Destroyed and burnt
"	"	350	2	"
"	Wire Ropeway (No. 5)			No. 5 & 6 Blocks destr- oyed.
Changjin-gang Power Plant (no. 1)	Transformer Blowout Coil of arc light	40,000	1	

As reported in the above, all transformer instruments of 110 KV class had been destroyed from bombing up to the end of September, not to speak of countless instruments of 66 KV class, and although some Transformer facilities had escaped bombing the power transmission was inactive because of the total destruction of factories.

Immediately after the Liberation by the UN Armed Forces, electricity was absolutely required for the maintenance of peace and order, and for the restoration of peace industries.

It would be exceedingly difficult to restore power equipments in a short time, but at least an exhaustive survey and checking should be carried out in order to protect all remaining equipments from further damage.

At present, the coolers on the ~~max~~ principal transformers at the Pyongyang Substation (No. 1) is being frozen to a point of explosion for lack of proper care; the multiple-phase machines of 10,000 KVA and their insulators are gathering rust underground;

the principal metal-parts and coils are buried rotting in soil, but no mechanical protection is extended; the various electric tools and machinery at their hiding shilters are also in rust, for the absenced of any caring hand.

Far from establishing an overall counter-measure for protection of these machines, only a local plan is being adopted to utilize electrical power by operating diesel generators of minor capacity. This method is ineffective unless a thoroughgoing repair is made on the transmission lines and transformer instruments.

We regret that there is no organized structure to preserve and protect the warform power equipments scattered all over North Korea. Therefore, we suggest that a definite plan be formulated by the competent authorities of the Republic of Korea as soon as possible in order to save the remaining electrical properties in our newly liberated territory.



**Transmission and Transformer Facilities**  
**(Additions and Removals)**

**November 1950**

STATISTICS OF SBSTATIONS

<u>Items/Substations</u>	<u>22 KV</u> <u>No. Cap.</u>	<u>154 KV</u> <u>No. Cap.</u>	<u>66 KV</u> <u>No. Cap.</u>	<u>22 KV</u> <u>No. Cap.</u>	<u>Total</u> <u>No. Cap.</u>	<u>Re-</u> <u>marks</u>
New installation		1 15,000	15 67,260	23 13,126	39 75,386 KVA	
Additions	1 100,000		15 69,110	7 10,970	23 180,080 KVA	
Removals			11 30,580	11 7,500	22 38,080	

Statistics of Transmission Lines

<u>Items/ Voltages</u>	<u>110 KV</u>	<u>66 KV"</u>	<u>32 KV"</u>	<u>11 KV</u>	<u>Total</u>	<u>Re-</u> <u>marks</u>
Additions	4 Km	104 Km	308.3 KM		416.3 KM	
Removals		91 Km	128.6 Km		219.6 Km	

Camparison with figures of 15 August 1945

As of 15 August 1945:

- (1) Number of Substations ..... 276  
Total capacity ..... 1,366,560 KVA
- (2) Percentage of number of Substations.
- A. New installations ..... 14.1 percent  
B. Removals ..... 8.3 percent  
C. Additions ..... 8.3 percent
- (3) Percentage of voltages
- A. New installations ..... 7 percent  
B. Removals ..... 28 percent  
C. Additions ..... 13 percent

Survey of Substations (Since 15 August 1945)

<u>Name of Substations</u>	<u>Voltage &amp; Capacity</u>	<u>Kind</u>	<u>Date of Work Completion</u>	<u>Remarks</u>
Saengjang	66/33 100x3	New	November 1949	for Saw Mill
Nanam	66/33 1000x4	"	October 1948	General Supply
Kwanpyŏng	66/22 4000x1	"	January 1950	Electric Railroads
Pyŏngyang	22/33 100x3	"	August 1947	General Supply
Hamhŭng (NO.2)	66/33 1500x4	"	October 1947	Electric Heat & General Supply
Sŏgwangsa	22/33 200x4	"	September 1949	General Supply
Kojin	22/33 200x3	"	July 1948	Recreation
Changjŏn	66/22 1500x4	"	August 1949	General Supply
Chŏrwŏn	22/33 200x3	"	October 1946	"
Chŏkchi	22/33 500x3	"	April 1948	Water Pumping
Pyŏlha	66/33 500x2	"	October 1946	General Supply
Kuhyŏn	66/11 900x3	"	January 1949	Electric R/R
Samgang	66/33 75x3	"	December 1946	General Supply
Kyesaeng	22/33 200x6	"	June 1950	Mines (Lead)
Paengnyang	22/33 300x3	"	September 1949	Mines (Monazite)
Charyŏngwan	66/33 300x3	"	June 1950	Mines (Monazite)
Chŏlsan	22/33 200x3	"	December 1949	"
Puryŏng	22/33 100x3	"	December 1949	"
Sinŭiju Central	66/33 500x3	"	August 1947	General Supply (Factories)
Toksan	22/33 200x3	"	April 1948	Water Pumping
Yŏnho	22/33 200x3	"	October 1948	"
Chŏngsan	22/33 200x3	"	November 1949	General Supply
Yangchŏn	22/33 200x2	"	March 1948	"
Unsan	22/33 200x3	"	October 1948	General Supply
Haeroe	22/33 200x3	"	June 1949	Water Pumping
Sinsŏngchŏn	22/33 200x3	"	March 1949	Mines (Zinc)
Wŏlli	22/33 100x6	"	June 1948	Mines (natural Cokes)
East-Pyŏngyang	66/11 12500x1	"	December 1949	General Supply
	66/33 1500x1	"		
Tongch'angpŏ	22/33 100x6	"	April 1946	Water Pumping
Pungnyul	22/33 300x4	"	September 1948	"
Samchŏn	55/12 750x4	"	September 1950	Mine (Gold, Lead)
Sŏchŏn	12/33 300x2	"	May 1947	Nagyŏn Mine
Chungsan	22/33 100x2	"	May 1947	Water Pumping
Chinchiyŏn	66/33 500x3	"	October 1948	Water Pumping
Pungchŏng	22/33 200x3	"	May 1947	General Supply
Mundong	22/33 100x2	"	May 1947	Water Pumping
Sŏkt'ang Spa	66/22 400x1	"	January 1949	General Supply
Anju Coal Mine	66/33 1500x4	"	October 1948	Electric R/R
Munpyŏng (154 KV)	154/66 15,000x1	"	October 1948	Mine (Coal)
Ŭndong	22/33 100x3	Removal	May 1947	Power (Factory) Due to Abandon of Ŭndong Mine
Ŭndong	22/33 300x4	"	May 1948	"
Wanpung	66/33 300x4	"	October 1948	"
Paengnyang	22/33 200x3	"	October 1947	"
Ipsŏk	22/33 200x3	"	May 1950	Construction of New Substation (66 KV) at Anju Coal Mine
Odong	22/33 200x3	"	October 1949	Abandon of Odong Mine
Yudong	22/33 100x3	"	September 1949	Change of Line (50-22 KV)

<u>Name of Substations</u>	<u>Voltage &amp; Capacity</u>	<u>Kidd</u>	<u>Date of Work completion</u>	<u>Remarks</u>
Kiyang	66/33 100x3	Removal	July 1948	Utilizing Kiyang Chemical Substation
Hasong2	66/23 100x4	"	October 1946	Abandon of Hasong Iron Mine
Unbong	66/33 1500x4	"	March 1947	To Samgang Sub-Station (from Chin
Chilpyong	66/33 50x4	"	September 1946	Supply from Tong-Chon Substation (Chilpyong Mine)
Sinpyong	22/33 200x3	"	December 1946	Abandon of Sanyon Mine
Changnim	22/33 200x4	"	March 1950	Supply Changnim Substation (66 KV)
Cgangsán	66/22 250x4	"	April 1947	Abandon of Changsan Mine
Kangsô Coal Mine	66/33 250x4	"	May 1950	Abandon of Kangsô Coal Mine
Taet'aeryong	22/33 300x3	"	December 1948	Construction of New Substation (66 KV)
Songyori	66/11 440x7 66/33 750x7	"	January 1949	Con. of New. at Tong-Pyongyang
Majang	66/33 510x2	"	September 1948	Abandon of Yongtu Mine
Munpyong Steel Pipe	22/33 500x1	"	June 1950	Abandon of Steel Pipe Factory
Songjin (No.1)	66/22 1000x5	"	November 1949	Supply from Substation at Chongjin Steel Mill
Anbyon	22/33 200x3	"	October 1947	Addition at Paehwa Substation
Yangyang	66/22 1500x4	"	April 1949	Interruption of Power Reception in South of 38th Parallel
Pukchin	66/33 750x4	Addition	October 1949	Restoration of Unsan Mine
Inhungni	66/33 1,000x1	"	October 1948	Increase of Gen. Demand.
Tongdaewon	66/33 700x2	"	November 1947	Increase of Gen."
Nampo (No.1)	66/33 500x3	"	June 1948	"
Mach'anmni	22/33 150x3	"	August 1948	Expansion of Reservoir (Nampo)
Wonumni	22/33 200x3	"	October 1949	Expansion of Salt Mill
Chaeryong	66/22 5,000x2	"	September 1950	Increase of Pumping and Mining
Sariwon	66/33 1500x2	"	June 1948	Increase of Gen. Demand
Sinchon	22/33 2000x2	"	December 1949	Increase of Pumping
Kanggye	66/33 1500x4	"	March 1947	Increase of Gen. Demand.
Optong	66/22 1500x1	"	April 1950	Increase of Chonma Mine
Sonchon	66/22 1000x2	"	April 1950	" Cholsan Mine
Ungok	22/33 200x3	"	June 1949	Expansion of Mines
Chongju	22/33 2000x3	"	December 1949	Increase of Gen. Demand
Sunchon	66/33 500x2	"	June 1948	Increase of Pumping
Myohyangsan	22/33 100x3	"	October 1947	Exploitation of Myohyangsan Mine

<u>Name of Substations</u>	<u>Voltage &amp; Capacity</u>	<u>Kind</u>	<u>Date of Work Completion</u>	<u>Remarks</u>
Parwŏn	66/33 750x3	Addition	September 1948	Increase of Gen. Demand
Chŏngjin (No.2)	66/22 4000x2	"	November 1947	Increase of Power at Factories
Chŏngjin (NO.1)	220/66 100,000x1	"	November 1948	To supply power to Hamgyŏngbukto
Paehwa	22/33 200x3	"	October 1947	Increase of Power at Factories
Iryŏng	66/22 22/33 500x3	"	October 1948	Increase of Mines
Hoeryŏng	66/33 750x3	"		Increase of Gen. Demand for Power.
	1000x4			
Yongdanpb	66/33 1000x3	"	September 1948	Expansion of Haeju Refinery

Survey of Transmission Lines (After 15 August 1950)

<u>Name of Line</u>	<u>Voltage</u>	<u>Kind</u>	<u>Section</u>	<u>Length</u>	<u>Date of Work Completion</u>	<u>Re-Mark</u>
Taetaeryöng			Chochön-Inhüngni			
Connecting Line	66KV	New		7 Km	December 1948	
Samchön	"	"	Chaeryöng-Samchön	18 "	September 1950	
Anju Coal Mine	"	"	Maengchungni (No.1)			
			Anju Coal Mine	10 Km	December 1954	
Kwanpyöng			Kwanpyöng			
Connecting Line	"	"	Sökt'ang Spa	27 Km	October 1949	
Sambang-wiik						
connecting Line	"	"	Sambang-wiik	32"	November 1948	
Nanam	"	"	Chuül-Nanam	3 "	October 1948	
Saengchang	"	"	Hyesan-Saengchang	4 "	December 1949	
Changjön	"	"	Sinillipal-Changjön	35	June 1949	
Hamhüng (No.2)	"	"	Changjin-Hamhüng	4	November 1947	
			(No.4) (No.2)			
Kyesaeng	22 KV	"	Unsang-Kyesaeng	65	June 1950	
Paengnyang	"	"	Pusö-Paengnyang	7	July 1949	
Chölsan	"	"	Pusö-Chölsan	2	December 1949	
Pungchöng	"	"	Taepyöng-Pungchöng	28	May 1947	
Tongch'angpö	"	"	Chaeryöng-Tongch'angpö	6	May 1946	
Söchön	"	"	Hanpö-Söchön	30	May 1947	
Pungnyul	"	"	Anak-Pungnyul	12	August 1948	
Yönho	"	"	Sinanju-Yönho	6	October 1948	
Taetaeryöng						
connecting Line	66KV	"	Chochön-Inhüngni	7	December 1948	
Samchön	"	"	Chaeryöng-Samchön	18	September 1950	
Anju Coal Mine	"	"	Maengchungni (No.1)			
			-Anju Coal Mine	10	December 1949	
Kwangpyöng			Kwanpyöng-Sökt'ang	27	October 1949	
connecting Line	"	"	Spa			
Sambang-Wiik	"	"	Sambang-Wiik	32	November 1948	
Nanam	"	"	Chuül-Nanam	3	October 1948	
Saengjang	"	"	Hyesan-Saengchang	4	December 1949	
Changjön	"	"	Sinillipal-Changjön	35	June 1949	
Hamhüng (No.2)	"	"	Changjin-Hamhüng	4	November 1947	
			(No.4) (No.2)			
Kyesaeng	22KV	"	Unsong-Kyesaeng	65	June 1950	
Paengnyang	"	"	Pusö-Paengnyang	7	July 1949	
Chölsan	"	"	Pus.o-Chölsan	2	December 1949	
Pungchöng	"	"	Taepyöng-Pungchöng	28	May 1947	
Tongch'angpö	"	"	Chaeryöng-Tongch'angpö	6	May 1946	
Söchön	"	"	Hanpö-Söchön	30	May 1947	
Pungnyul	"	"	Anak-Pungnyul	12	August 1948	
Yönho	"	"	Sinanju-Yönho	6	October 1948	
Chöngsan	"	"	Yöngyu-Chöngsan	12	October 1949	
Tanchön	"	"	Ibwön-Tanchön	24	September 1948	
Chökchi	"	"	Aoji-Chökchi	20	April 1947	
Sögwangsa	"	"	Paehwa-Sögwangsa	12	October 1949	
Köjin	"	"	Söju-Köjin	32	July 1948	
Sokchö	"	"	Köju-Sokchö	12	July 1949	
Yongan	"	"	Hoeryöng-Yöngan	18	November 1949	
Chungdo	"	"	Hoeryöng-Chungdo	43	November 1949	
Yongsöng	110	"	Pongung-Yongsöng	4	November 1946	
			(No. 46)			
Majang	66	Removal	Unsan-Majang	29.5	October 1948	
Wanpung	"	"	Taeyutong-Wanpung	19	October 1948	
Naksan	"	"	Kwanhae-Naksan	15	April 1950	
Pokkye	"	"	Kümhwa-Pokkye	275	October 1949	one circuit line removed

Name of Line	Voltage	Kind	Section	Length 4 Km	Date of Work Completion	Re- marks
Maengchungni (one part)	66KV	Removal	Sinanju-Maengchungni		March 1950	
Ungdong	22	"	Kaego-Ungdong	22	June 1948	
Udong	"	"	Udong-Ungdong	45	May 1947	
Songpyong	"	"	Taepyongdong- Songpyong	24	December 1946	
Changpyodong	"	"	Changpyodong- Yudong	12	August 1949	
Paengnyang	"	"	Pusong-Paengnyang	8	March 1949	
Caegwa Branch	"	"	Paehwa-Anbyon	5.6	October 1947	
Pangyo	"	"	Sakchu-Pangyo	12	December 1946	

Transmission Line as of June 1949

Section/kind	22	66	110	154	220	Total
Hochon-gang						
length	24,274	49,916	415,760		365,503	855,453
Extension	72,822	49,738	2,466,810		1,096,509	2,785,879
Supports	469	374	1,490		1,004	3,337
Changjin-gang		90,537	106,987	122,357	7,966	327,847
		271,700	611,000	499,400	24,000	1,406,100
		831	385	358	26	1,100
Puchon-gang	1	146.3	299.5			445.8
		362	673			1,035
West Trans- mission		17.3		477.7	293.6	758.6
		103.8		2,505.3	580.8	3,189.9
		64		1,306	765	2,135
Pyongyang	16,900	17,420				34,320
	50,700	75,200				125,700
	255	125				380
Pyongnam	314,359	668,147				982,506
	443,087	2,912,416				3,355,493
	5,442	5,336				10,778
Haeju	310,120	346,300				656,420
	938,250	141,510				1,079,760
	4,750	2,005				6,755
Sinuiju	342,268	190,454				592,722
	1,024,675	560,167				1,554,842
	4,719	1,712				6,431
Hamhung	75,107	122,506				197,613
	225,321	641,084				866,405
	1,193	680				1,873
Wonsan	109,963	434,455				544,418
	329,589	1,303,365				1,632,954
	1,661	4,846				6,507

<u>Section/kind</u>	<u>22</u>	<u>66</u>	<u>110</u>	<u>154</u>	<u>220</u>	<u>Total</u>
Ch'ongjin	113,400 340,200 1,679	74,200 248,000 619				187,600 588,200 2,298
Nampo	148,490 490,664 2,328	531,904 1,967,835 3,736				680,394 2,445,439 6,054
Tanch'on	367,648 1,161,404 6,165	54,210 2,551,764 3,402				878,858 3,353,548 9,567
Hwach'on				14,800 74,800 35		
Kanggye	278,186 282,367 4,486	231,642 235,096 2,147				509,801 517,453 6,527
Total	2,100,715 5,799,379 33,187	3,432,371 10,351,415 26,133	822,647 3,077,810 2,548	581,857 3,075,500 1,699	661,069 1,701,309 1,795	7,598,459 24,005,413 65,362



Transformer Facilities

November 1950

Statistics of Transformer Substations in North Korea

Item/Substation	220 KV No. Capacity	154 KV No. Capacity	110 KV No. Capacity	66 KV No. Capacity	44 KV No. Capacity	22 KV No. Capacity	11 KV No. Capacity	Total No. Capacity
North West Bureau	3 500,000	2 120,000		58 205,831		89 88,601	1 9,000	151 923,432
" (Home uses)				30 331,606	2 5,250	26 20,018	2 16,350	60 373,224
Total	3 500,000	2 120,000		86 537,437	2 5,250	115 108,619	3 25,350	211 1,296,656
North-East Bureau	1 100,000	1 15,000	3 139,500	55 164,108		82 81,826		142 500,434
" Home use	1 160,000		2 427,000			8 7,950		11 594,950
Total	2 260,000	1 15,000	5 566,500	55 164,108		90 89,776		153 1,095,384
Bureau Total	4 600,000	3 135,000	3 139,500	111 369,949		171 170,427	1 9,000	293 1,423,866
Home use Total	1 160,000		2 427,000	30 331,606	2 5,250	34 27,968	2 16,350	71 968,174
Grand Total	5 760,000	3 135,000	5 566,500	141 701,545	2 5,250	205 198,395	3 25,350	364 2,392,040

## Transformer Substations (Before 25 June 1950)

Name of Substations	Output KVA	Capacity KVA	Voltage 1st 2nd 3rd	Connecting Method	Indoor Outdoor	Cooling Method	Phase	Frequency	Number Common use	Spare	Maker	Remarks
Inhŭngni	1,000	2,000	66 3.3	Δ-Δ	Outdoor	Self Cooling	1	60	3	1	Mitsubishi	
"	10,000	10,000	66 3.3	"	"	"	3	"	1		Maiden	
Nangnang	75,00	2500	66 22	"	"	"	1	"	3	1	Hidachi	
"	900	200	22 3.3	"	"	"	1	"	3	1	Hidachi	
East-Pyŏngnyang	12500	12500	66 11	"	"	"	3	"	1			
"	1500	600	66 "	"	"	"	1	"	3	1	Hidachi	
Imwŏn	1800	600	66 11 3.3	"	"	"	1	"	3	1	"	
Changchŭlli	1200	400	22 "	"	"	"	1	"	3		"	
Pyŏngchŭlli	6000	2000	22 "	"	Indoor	"	1	"	3	1	"	
Taetaeryŏng	1500	600	66 3.3	Δ-Δ	Outdoor	"	1	"	3			
Yusŏggni	4500	1500	11 "	"	Indoor	"	1	"	3	1	Shibaura	
Kosan	450	150	22 3.3	"	Outdoor	"	1	60	3		Shibaura	Shibaura
Chosŏn	1500	500	" "	"	"	"	1	"	3	1	Mitsubishi	Chemistry
Samsin	600	100	11 3.3	"	"	"	1	"	6	1	Fuji	Coal Mine
Kobangsan	1050	350	66 "	"	"	"	1	"	3	1	Osaka	"
"	600	200	11 "	"	"	"	1	"	3	3	U/S/A	"
Sadong	2100	700	66 "	"	"	"	1	"	3	1	Shibaura	
Sinŭiju (No.1)	6000	2000	22 "	"	"	"	1	50	3	1	Hidachi	
Sinŭiju (No.2)	4500	1500	" "	"	"	"	1	50	3		"	
South Sinŭiju	4500	1500	66 22	"	"	"	1	50	3		"	
"	1350	450	" 3.3	"	"	"	1	50	3		Fuji	
Sinŭiju Central	1500	5000	" "	"	"	"	1	"	3		Shibaura	
Uiju	2700	900	" "	"	"	"	1	"	3		"	
Ch'angp'dong	696	400	22 3.3	V-V	Outdoor	"	1	50	2		Kitagawa	Use 60-
Yongamp'o	3000	1000	66 22	"	"	"	1	60	3	1	Shibaura	
"	900	300	22 3.3	"	"	"	1	"	3	1	"	
Yangsi	1500	500	22 3.3	"	"	"	1	60	3		Fuji	
Namsi	450	150	" "	"	"	"	1	"	3		Nishijima	
Kangbyŭlli	3000	3000	" "	"	"	"	3	"			Mitsubishi	Electric R/R

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common use	Spare		
Wonsong	1050	350	22	3.3		△-△	Outdoor	Self cooling	1	50-60	3		Kitagawa	
Songwon	2000	1000	66	22		"	"	"	3	60	1	1	Shibaura	
"	1500	500	"	"		"	"	"	1	"	3	1	"	
"	1020	340	22	3.3		"	"	"	1	50-60	3		Fuji	
Charyongwan	900	300	66	3.3		"	"	"	1	60	3		Shibaura	
Chaptong	7100	1500	"	22		"	"	"	1	"	5		"	
"	150	50	22	3.3		"	"	"	1	"	3		"	
Sokchu	2250	750	66	22		"	"	"	1	"	3	1	"	
"	1200	200	22	3.3		"	"	"	1	"	6	1	"	
"	300	100	"	"		"	"	"	1	"	3		"	
Chongsongjin	300	100	22	3.3		"	"	"	1	"	3		Osaka	
Sinsang	300	100	"	"		"	"	"	1	"	3		Shibaura	
Chongju	3460	2000	"	"		V-4	"	"	1	"	2		Mitsubishi	
Kilssang	300	100	"	"		△-△	"	"	1	10	3	1	Hidachi	
Koan	150	50	"	"		V-V	"	"	1	"	2		Osaka	
Yonghyon	300	100	"	"		△-△	"	"	1	"	3		Shibaura	
Kusong	300	100	"	"		"	"	"	1	"	3		Hidachi	
Unjon	600	200	"	"		"	"	"	1	"	3		Shibaura	
"	300	100	"	"		"	"	"	1	"	3		Hidachi	
Chongjong	150	50	"	"		"	"	"	1	"	3		Fuji	
Mullye	381	220	"	"		V-v	"	"	1	"	2	1	Nagoya	Mining
Ungok	600	200	"	"		△-△	"	"	1	"	3		Nishijima	"
"	174	100	"	"		"	"	"	1	"	3		Hidachi	"
Ogung	750	250	"	"		"	"	"	1	"	3		Hidachi	"
Noyuri	1500	500	"	"		"	"	"	1	60	3		Shibaura	"
Chungdaeri	870	500	"	"		V-V	"	"	1	50-50	2		"	"
Kuam	435	250	"	"		"	"	"	1	60	2	1	Hidachi	"
Samsong	900	300	"	"		△-△	"	"	1	"	3	1	"	"
Sangdandong	693	200	"	"		V-V	"	"	1	50	4		Hidachi	"
Pusong	150	50	"	"		△-△	"	"	1	60	3		Shibaura	"
Pusong	432	250	"	"		V-V	"	"	1	"	2		"	"
Sanchon	300	100	"	"		△-△	"	"	1	"	3		"	"

Power Plant Facilities

November 1950

## POWER PLANT FACILITIES

Name of Power Plant	Output	Motor Kind	(KW)	No.	Maker	Capacity	Generator Voltage	Rotation	No.	Maker	Capacity	Transformer 1st (V)	Transformer 2nd (V)	No.	Maker
Changjin-gang Power Plant (No. 1)	144,000	Pelton	38,500	4	Chōmōpsa	40,000	10,000	160	4	Shibaura	40,000 7,500 5,000 300 150	10,500 10,500 10,500 11,000 11,000	110,000 11,000 11,000 3,450 210	5 1 1 3 4	Shibaura " Hidachi Shibaura "
Changjin-gang (No. 2)	106,300	Francis (Length)	33,800	4	"	31,100	11,000	600	4	"	45,000 60,000 5,000 300 150	10,500 10,500 10,500 10,500 10,500	110,000 154,000 3,450 3,450 210	3 4 1 3 4	" " Hidachi Shibaura "
Changjin-gang (No. 3)	42,000	Francis (Length)	14,500	3	"	15,500	11,000	300	3	"	15,500 300 150	10,500 11,000 11,000	110,000 3,450 210	3 1 2	" " "
Changjin-gang (No. 4)	34,200	Francis (Length)	15,000	3	"	13,500	11,000	360	3	"	18,000 300 150	10,500 22,000 11,000	110,000 3,450 210	4 2 2	" " "
Hōchōn-gang Power Plant (No. 1)	145,000	Pelton (breadth)	42,000	4	"	40,000	11,000	400	4	"	80,000 4,000 300 150	10,500 11,000 2,000 11,000	220,000 66,000 3,450 310	2 4 3 4	" Fuji Osaka Shibaura
Hōchōn-gang (No. 2)	69,800	Francis (Length)	22,000	4	"	20,000	11,000	514	4	"	40,000 200 150	10,500 22,000 11,000	220,000 3,450 210	2 3 4	" " "
Hōchōn-gang (No. 3)	58,000	Francis (Length)	14,500	4	"	18,500	11,000	400	4	"	40,000 37,000 300 150	10,500 110,500 22,000 11,000	220,000 114,000 3,450 210	1 2 3 2	" " " "
Hōchōn-gang (No. 4)	66,000	Francis (Length)	21,000	4	"	20,000	11,000	400	4	"	40,000 3,000 300 150	10,500 11,000 22,000 11,000	110,000 66,000 3,450 210	2 4 1 3	" " " "
Supung Power Plant	400,000	Francis (Length)	105,000	2	Chōnōpsa	100,000 50/60 6,000	16,500	125/150	2	Shibaura	100,000	16,500	230,000	2	Shibaura
			105,000	2	"	100,000	16,500	150	2	"	100,000 100,000 60,000 1,500 700 600	16,500 16,500 16,500 16,500 16,500 16,500	230,000 230,000 69,000 3,450 3,450 210	2 1 3 4 4 5	" " " " " "
Puchōn-gang Power Plant (No. 1)	129,600	Pelton (breadth)	45,000	4	Hoit	36,000	11,000	360	v4	Seameans	36,000 4,000 350 150	11,000 11,000 11,000 11,000	110,000 66,000 3,300 210	5 3 3 4	" " Mitsubishi "
Puchōn-gang Power Plant (No. 2)	41,900	Pelton (Breadth)	31,000	2	Chōnōpsa	23,000	11,000	450	2	Shibaura	23,000 100 150	11,000 11,000 11,000	110,000 3,300 210	3 3 3	Shibaura Mitsubishi Shibaura
Puchōn-gang Power Plant (No. 3)	18,000	Pelton (breadth)	27,000	1	"	23,000	11,000	279	1	"	6,666 110 150	11,000 11,000 11,000	110,000 3,300 210	4 3 1	Mitsubishi Shibaura "
Puchōn-gang Power Plant (No. 4)	11,700	Pelton (breadth)	9,000	2	"	6,500	11,000	257	2	"	4,333 500 50 50	11,000 11,000 11,000 11,000	67,500 22,000 33,000 210	4 4 3 3	" Osaka " Shibaura
Puryōng Power Plant (No. 1)	13,400	Pelton (breadth)	2,609	2	Hidachi	8,600	6,600	400	2	Hitachi	5,733	6,300	66,000	3	Hidachi
" (No. 2)	9,400	Francis (Length)	5,334	2	"	6,000	6,600	720	2	"					
" (No. 3)	5,200	"	2,939	2	"	3,300	6,600	720	2	"	2,200	6,300	66,000 154,000	3	Hidachi
Hwachōn Power Plant	81,000	"	30,000	3	"	30,000	11,000	200	3	"	30,000 30,000	10,500 10,500	3,450 154,000 66,000	1 1	" "

(6)

Curvelines  
of  
Water Capacity  
at  
Each Reservoir

25X1

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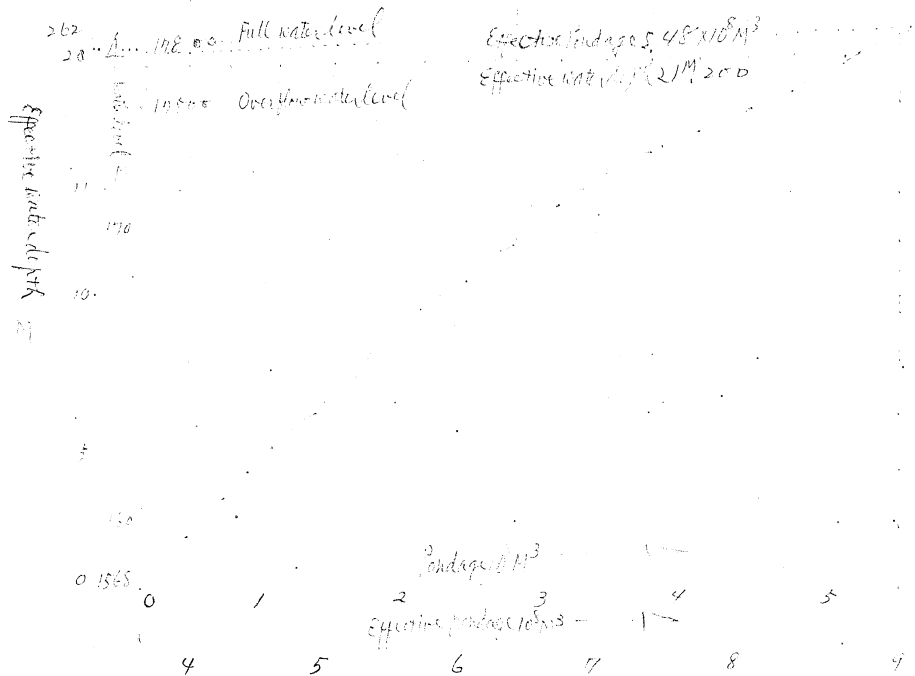


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180

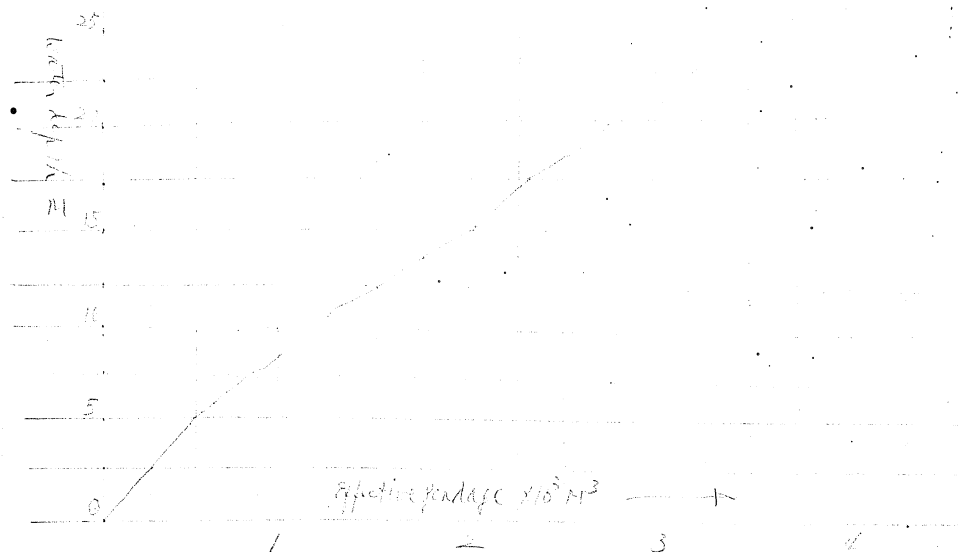
Puchong Reservoir

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Puchong Reservoir

31.45

Effective pondage  $5.48 \times 10^3 M^3$ 

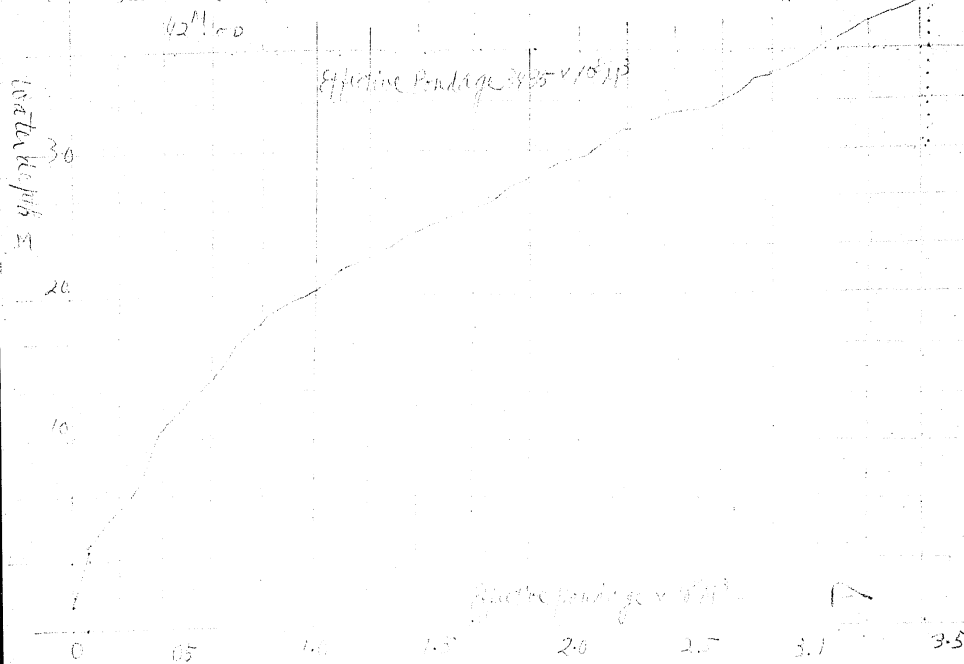
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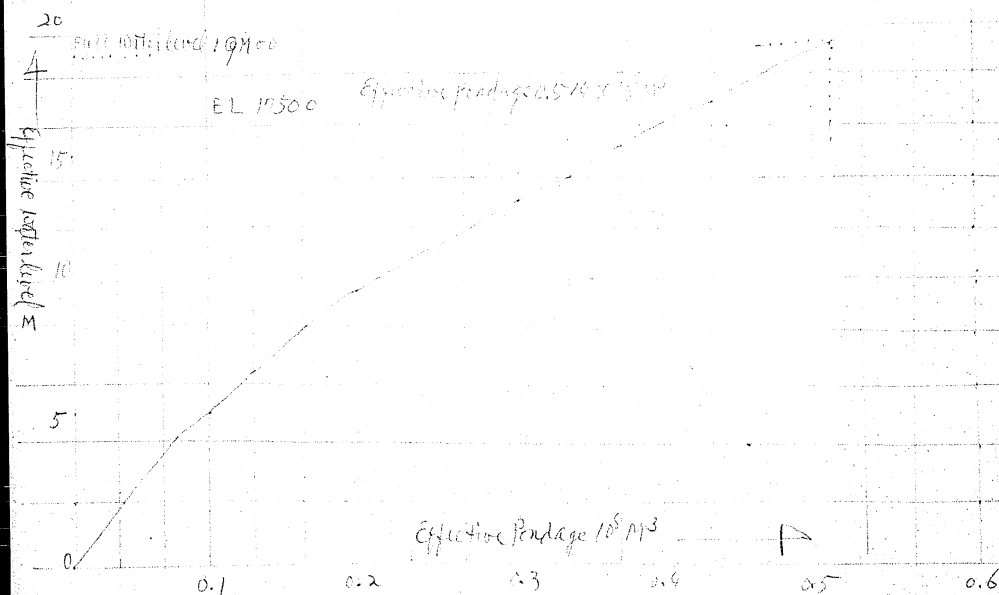
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# Full water level Hwangsuwon Reservoir

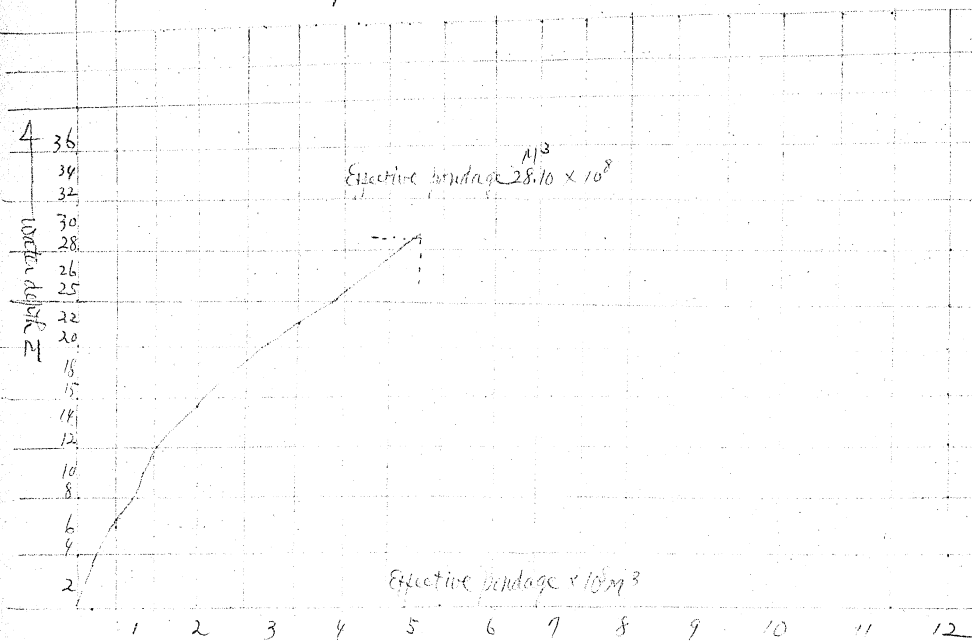


## Puyong Reservoir

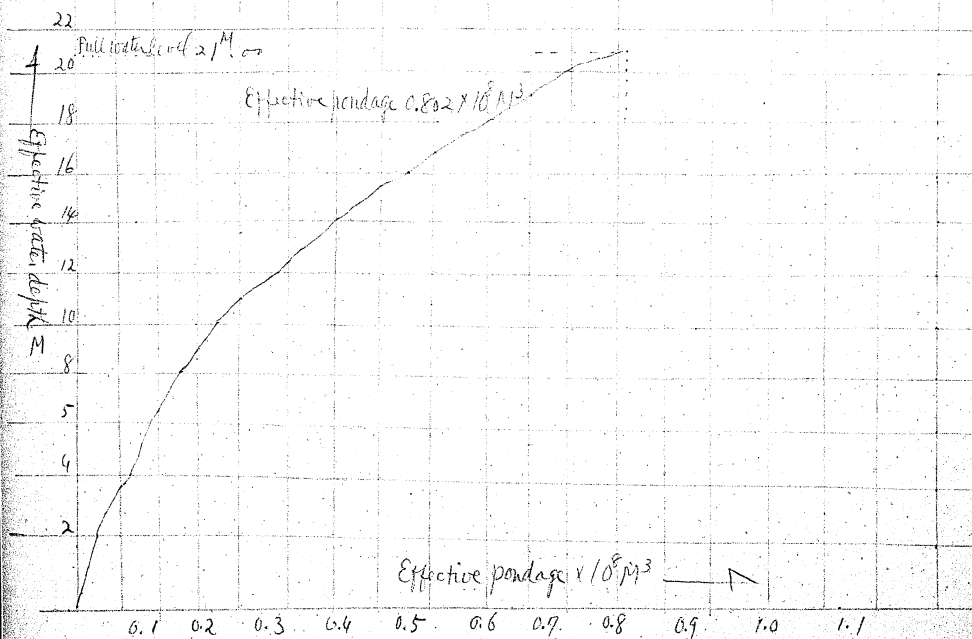


## Tongnogang Reservoir

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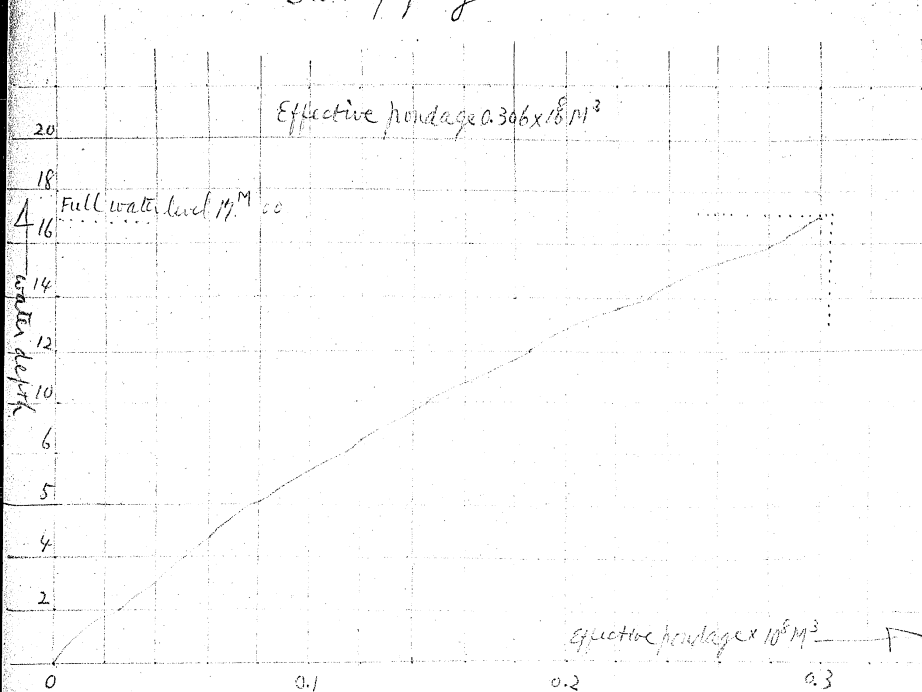


## Naejungni Reservoir

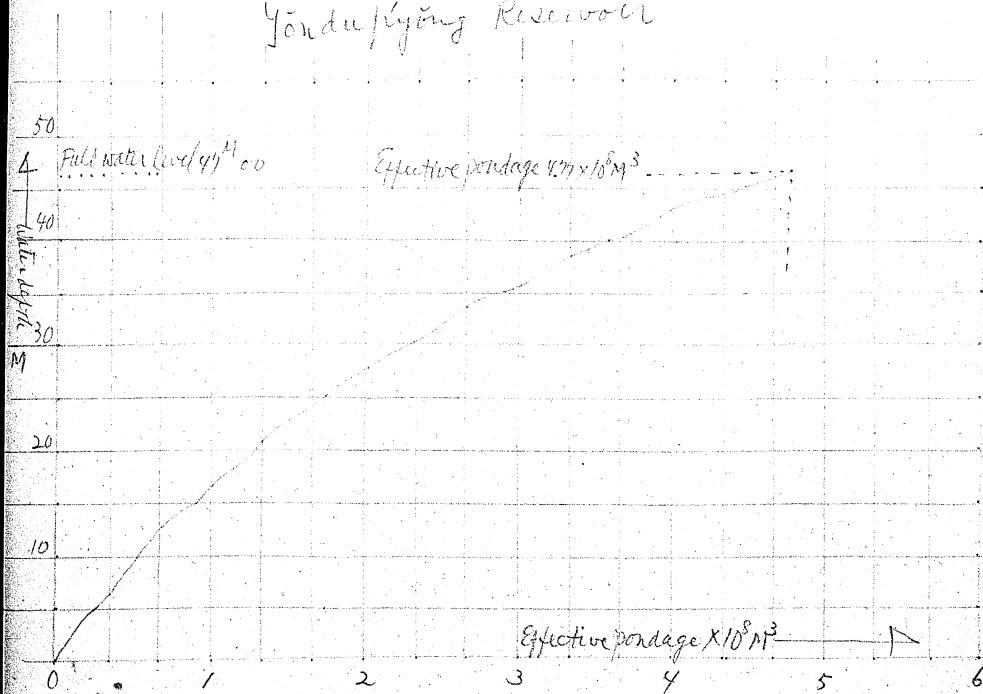


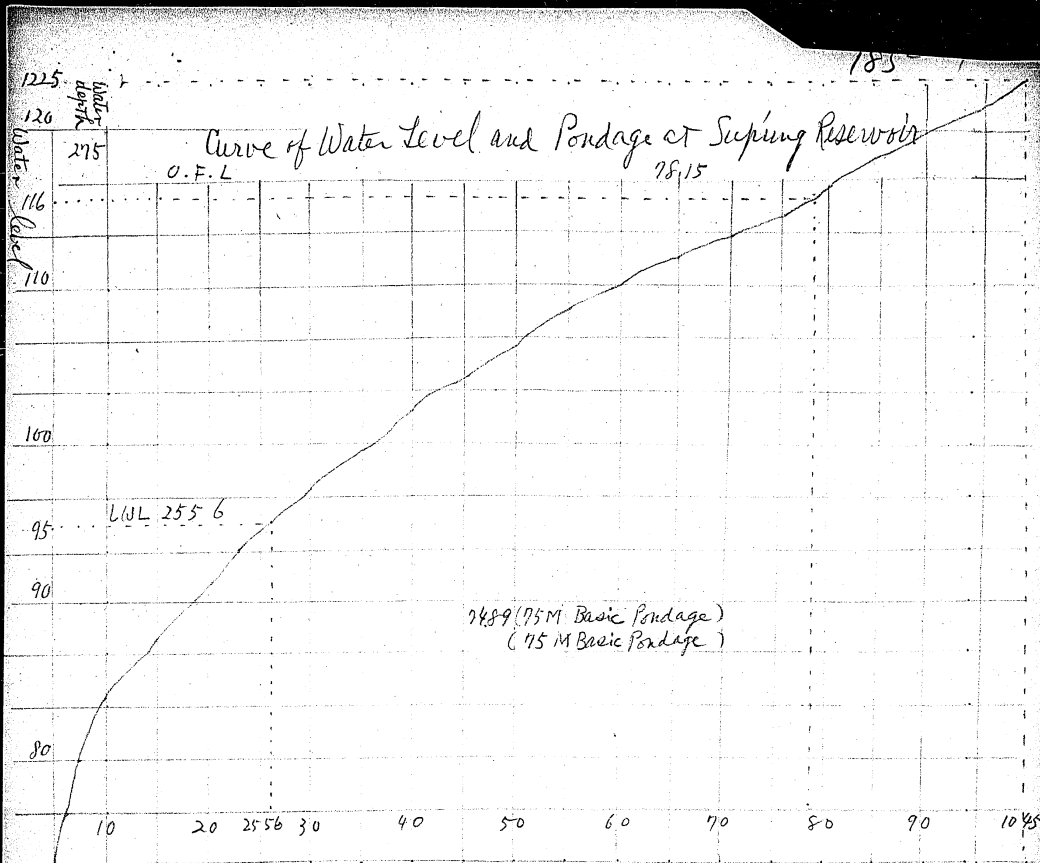
## Sachopyong Reservoir

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## Yönduhyong Reservoir





Items for Reference

186

Actual Results of Production  
in North Korea (16 November 1950)

(1) Electricity

Name of Factories	Name of Articles	Unit	Plan for February	Production in February	Plan for March	Production in March	Remarks
Kangso Electric Machine Works	2nd Class Wire	Φ	38	36,510	38,000	33,250	
	4th Class Wire	"	4	0	6,000	0	
	Uncoated electric wire	"	150,200	59,600	106,100	63,695	

(2) Coal

Roji Coal Mine	Bituminous Coal	Φ	39,000,000	31,613	42,000	23,384	
Kogonwon "	"	"	9,500	9,789	12,500	12,685	
Anju "	"	"	21,000	31,308	23,200	24,230	
Sinchang "	Anthracite Coal	"	34,000	37,024	41,000	46,340	
Kaecheon "	"	"	30,500	20,329	34,000	19,063	
Sinyuson "	Bituminous Coal	"	7,000	6,000	8,500	8,656	
Kungsim "	"	"	19,000	13,605	22,000	15,234	
Yongmun "	Anthracite Coal	"	18,000	12,952	17,600	15,419	
" "	Blump coal	"	1,600	870	1,800	1,545	
Yongdung "	"	"	3,000	2,163	4,000	4,041	
"	Anthracite Coal	"	11,500	12,995	10,000	13,371	
Tokehon "	"	"	19,500	19,535	21,500	21,580	
Hungnyong "	"	"	21,000	21,462	24,000	25,125	
Kangdong "	"	"	11,100	8,077	11,800	8,000	
Samsin "	"	"	10,700	15,672	16,000	18,484	
Sedong Factory	"	"	5,300	18,807	17,200	19,715	
"	Briquettes	"	17,400	6,248	5,900	6,093	

## (3) Colored Metal Ores

187

Hamhung Mine	Crude ore	\$	21,710	21,186	21,710	30,104	
"	Concentrate	"	2,550	2,588	2,560	3,564	incl. Cu, Au, Zn
Holtong "	Crude ore	"	20,040	6,876	20,040	12,724	
"	Concentrate	"	1,160	1,445	1,170	399.18	
"	High grade ore	"	2,600	9,152	2,700	992	
Suan "	Crude copper	"	18,937.8	10,527.3	18,978	17,605.2	
"	Copper concentrate	"	990	653.9	990	1,124.067	
"	Crude molybdenum	"	4,590	2,272	4,590	3,286	
"	Molybdenum concentrate	"	190	0	17	72	
"	High grade ore	"	190	0	190	0	
Kondok "	Crude lead	"	11,086	10,615	11,469	13,470	
"	Lead concentrate	"	570	459	570	629	
"	Zinc concentrate	"	2,900	2,642	3,000	3,516	
Taeyudong "	Crude ore	"	12,087	5,604	16,117	7,145	
"	Concentrate	"	1,000	573 <sup>7</sup>	2,000	957 <sup>752</sup>	
Koksan "	Tungsten	"	200	160	300	187 <sup>563</sup>	
Huajing "	Crude ore	"	1,166	669	1,069	1,102 <sup>42</sup>	
"	Concentrate	"	170	171 <sup>2</sup>	170	315 <sup>09</sup>	
Hueikang "	Crude ore	"	—	—	5,643	79 <sup>35</sup>	
"	"	"	280	253 <sup>3</sup>	290	381 <sup>5</sup>	



## (4) Black metal ores

188

Tanachon Mine	Iron sulphide	£	19,100	19,495	19,200	29,166
"	Ore dust	"	-	-	-	22,363
Hasong "	Brown iron lump ore	"	13,000	12,692	14,000	16,452
"	Brown iron Ore dust	"	9,000	22,275	9,000	11,965
Chaeryong "	Brown iron ore	"	6,000	6,544	6,400	10,020
Chondong "	Iron ore	"	15,000	15,491 <sup>9</sup>	16,000	19,756 <sup>9</sup>
Changdo "	Iron sulphide	"	15,491 <sup>9</sup>	16,000	6,000	
Kaecheon "	Earth graphite	"	3,680	3,742	3,794	3,872

## (5) Metal

Hwanghae Iron Mill	Pig iron	£	20,200	17,205	22,400	19,165
"	Cokes	"	19,400	16,419	20,600	20,862
"	Steel ingot	"	16,200	9,512	12,400	11,092
"	Rails	"	-	-	-	-
"	Square steel	"	0	833	0	293
"	Special square	"	500	238	0	399
"	Angle steel	"	2500	904	500	3292
"	Thick plate	"	5950	5432	6,000	5445
"	Thin plate	"	580	102	480	1208 <sup>62</sup>
"	Tar	"	740	850	816	1021
"	Pitch	"	360	423	385	493
"	Galvanized sheet iron	"	145	64	225	150
"	Sodium sulphate	"	200	387	225	248
"	Round Saw	"	310	372	540	332

Songjin							187
Iron Mill	Steel ingot	£	4660	3455	5170	4563	<sup>98</sup>
"	Fe - W	"	150	54	165	75	<sup>308</sup>
"	Fe - Mo	"	6	13	9	4	<sup>111</sup>
"	Steel rod	"	670	215	670	484	<sup>122</sup>
"	Hollow steel tube	"	65	44	60	67	<sup>502</sup>
"	Medium size steel plate	"	800	445	900	1086	<sup>910</sup>
"	Thin plate	"	335	251	390	371	<sup>28</sup>
"	Silicon steel plate	"	68	29	119	104	<sup>42</sup>
"	High speed steel	"	60	260	140	229	<sup>22</sup>
"	Coal dust steel	"	750	464	600	1287	<sup>386</sup>
"	Iron wire	"	10	38	22	27	<sup>44</sup>
"	Electrode	"	365	187	405	330	<sup>475</sup>
Kangson							
Steel Mill	Steel ingot	"	2200	1215	2400	1873	<sup>444</sup>
"	Blooming	"	2480	1263	2760	2160	<sup>578</sup>
"	Steel ingot	"	2200	1215	2400	1873	<sup>444</sup>
"	Roller	"	50	90	50	22	<sup>2</sup>
"	Medium size steel plate	"	6100	797	1200	1470	<sup>255</sup>
"	Miniature steel plate	"	1100	418	1175	294	<sup>549</sup>
"	Silicon iron	"	39	44	43	76	<sup>686</sup>
"	Fe - Mn	"	85	113	45	106	<sup>836</sup>

						170
Chongjin						
Steel Mill	Granulated iron	\$	2,640	2,705	2,930	3,241
"	Steel ingot	"	-	389	-	415
"	coke	"	19,670	10,489	19,540	13,599 <sup>2</sup>
"	Pitch	"	374	287	415	282
"	offell	"	750	347	835	434
"	Sodium sulphate	"	308	-	568	293 <sup>5</sup>
Hambo						
Refinery	Crude steel	"	350	238	399	276 <sup>206</sup>
"	Electrolytic zinc	"	700	424	150	621 <sup>255</sup>
"	Zinc oxide paint	"	60	36 <sup>4</sup>	60	58 <sup>61</sup>
"	Sodium carbonate	"	50	55 <sup>4</sup>	50	70 <sup>404</sup>
"	Quinoline	"	35	2 <sup>2</sup>	25	428 <sup>15</sup>
Hungnam						
Refinery	Electrolytic copper	"	300	214	300	291 <sup>37</sup>
"	Electrolytic lead	"	300	342 <sup>21</sup>	300	220 <sup>124</sup>
"	Sodium sulphate	"	30	36 <sup>187</sup>	40	51 <sup>3</sup>
"	Electrolytic silver	"	1,098	1,438 <sup>408</sup>	1,133	1,663 <sup>225</sup>
"	Crude gold	"	497	256 <sup>135</sup>	527	387 <sup>453</sup>

(91)

Munghyong Refinery	Cause lead	7	915	434	1,194	793
"	Auto dytic lead	2	600	400	818	632 <sup>723</sup>
"	Cause gold	2	35	51	45	46 <sup>B</sup>
"	Auto dytic silver	2	1,529	1,120	1,434	1,244 <sup>1155</sup>
"	Silver oxide	2	58	40	61	57 <sup>55</sup>
"	Auto dytic silver	2	0.2	0	0.2	0.19

Yanjo Bridge Factory	Heat Exch.	2	300	200 <sup>200</sup>	300	200 <sup>100</sup>
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### (6) Machinery

Yongsong Machine Factory	Red. pump	3	326 <sup>2</sup>	4	33 <sup>2</sup>
"	"	2	0 <sup>1</sup>	4	5 <sup>5</sup>
"	Braking pot	2	-	1	217 <sup>2</sup>
"	Water mill bucket	3	-	4	17 <sup>3</sup>
"	Hydraulic press	1	072 <sup>2</sup>	2	0

Central Machine Factory	Lathe	7	29,600 <sup>26</sup>	7	62,050 <sup>26</sup>
"	Plane	2	136 <sup>2</sup>	4	60,410 <sup>26</sup> 8 H <sup>2</sup>

Haeju Machine Factory	Double acting piston	0.5	0.6	0	77	540 <sup>P</sup>
"	Twilight cars for Forest R/R	70	0	40	0	

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Mandok						
Machine Factory	Hoisting machine	1.5	-	1.5	25%	100 HP
"	"	2.2	0	2.2	0	75 HP
"	"	1.5	0%	0.9	0	50 HP
"	Mill diamond	1.5	1.05	55	12%	
"	Sawmill	4.5	0	5.0	0.7%	
"	charging machine	1.5	0.6	0.7	0.24%	
Pukhng	overhead					
Machine Factory	working crane	2	3	4	0.46%	
"	Butt joint cell	3	4.7	4	0.95%	
"	Trailer	3	3.2	4	0.42%	
Nahing						
Machine Factory	Steel ingot case	375	375	375	104%	
"	Se - SI	55	60	55	134%	
"	Power	1,500	1,520	1,500	118%	
"	Plough	1,800	1,042	2,200	88%	
"	Crane power	200	0	200	28%	
"	Hoisting machine					
Pingyang						
Farm Implement	Straw rope making machine	400	160			
Factory						
"	Mower	600	281	3,000	72 <sup>28%</sup>	
"	Electric fan	200	-	3,000	80 <sup>69%</sup>	
"	Plough	500	1009	500	100	

Wonsan						193
Shipyard	Steam engine	6.3	0.13	0.5	0.52	
	Rubber boat	10	5.95	16	0.43	
	File driver	0.6	-	1.3	0.10	

Nagwon						
Machine	Rubber roller		0	3	0.50	
	Best human jacket	-	-	-	0.30	120 #/hr
		-	-	-	-	200 #/hr
		-	-	-	0.10	300 #/hr

## (7) Chemicals

Hingnam	Ammonium sulphate	24,810	28,424	25,500	32,199
	Ammonium phosphate	1,210	1,402	1,500	1,496
	Ammonia	6,536	8,036	7,515	9,450
	Glycerine	53	45	58	65
	Sanitary soap	990	672	1,050	1,344
	Toilet soap	79	68 <sup>1/2</sup>	28	103
	Concentrated sulphuric acid	808	1,150	1,226	1,191
	Pillate Sulphuric acid	28,150	23,843	22,320	28,153
	Mercuric chloride	98	101	98	139
	Mercuric chloride	312	345	342	320

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Pongung  
Chemical  
Factory

Carbide	£	4588	9226	2406	11,703
Coal nitrogen	"	1950	2296 <sup>2</sup>	2150	3,645
"Ammonia"	"	110	126	120	172
Salt rock	"	1096	786 <sup>3</sup>	547	919
Liquid chlorine	"	31	415	38	59
Sodium hydroxide	"	840	866 <sup>5</sup>	910	982
Sodium carbonate	"	500	659	545	596
Alcohol	kl	340	428 <sup>5</sup>	350	859
Acetic acid	£	25	59 <sup>3</sup>	30	37
Hexon	"	23	39.2	26	45
Dum cans		30,000	3,184	30,000	35,892

Hing Nam  
Gunpowder  
Factory

Dynamite	£	927	0	445	498.2
Fuse	Km	2440	2103	2680	3610
Detonation cap round		245	80 <sup>50</sup>	200	
Concentrated nitric acid	£	289	1291 <sup>946</sup>	315	255 <sup>7</sup>
Ammonium nitrate	"	1126	3029	1240	1389 <sup>2</sup>

Publication  
stopped  
(Secret)Suncheon  
Chemical  
Factory

Carbide	"	1550	1717 <sup>3</sup>	1700	1912
Calcium cyanamide	"	1070	1150 <sup>6</sup>	1000	1419

Ching-shu Chemical Factory		Carbide	2240	2308	2450	2416
" "		Sum coal	0400	5586	1300	10167
Huang-shu Soda Factory		Sodium hydroxide	-	-	-	-
" "		Leaching soda	-	-	-	-
Huang-shu Synthetic Oil Factory		Alcohol	460	0	310	511
Huang-shu Chemical Factory		Combined bottles	2400	3200	2400	1277
" "		Glycerin	170	190	200	1262
Huang-shu Chemical Factory		Sodium acetate	100	525	100	100
" "		Allic acid	15	596	25	100
Huang-shu Research Institute		Eyes	330	0	4130	4130
		Kg				no principal eyes



## (8) Building Materials

Singhori Cement Factory	Cement	₹	16,000	16,484	20,142	13,187	196
Hacjir Cement Factory	"	"	9,500	7,584	9,100	12,485	
Madong Cement Factory	"	"	7,500	7,580	10,030	10,048	
Channari Cement Factory	"	"	11,000	11,269	12,000	14,235	
Konumak Cement Factory	"	"	5,500	5,756	7,150	12,178	
Nampal Metal Factory	Latex	"	500	0	700	46	100
Indi Textile Mill	Cotton yarn	Kg	116,000	128,000	122,000	122,297	
"	Indicacac	lit	116,000	4001	2,334	2076	
"	Cotton goods	m	48,407	419,200	602,861	258,050	Planting Twill
Singhji Paper Mill	Foreign paper	₹	579	227.2	281	313	50
"	Recycled paper	"	20	0	95	45	20
"	Tissue paper	"	15	15.3	15	23	24
Singhji Pulp Mill	Rock's pulp	"	272	352.2	296	444	319 B.O. Class
"	Craft paper	"	40	52.5	43	57	16
"	Drawing paper	"	172	178.3	188	208	843
"	Toilet paper	"	110	248.2	125	258	76

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Suriwon Textile Mill	Sheeting	m	324,083	131,889	324,084	212,9992
"	Twill	m	169,416	122,889	169,417	157,193
"	Denim	met	2,833	6,367	2,834	2,950
"	Cotton serge	m	3,100	7,933	5,900	4,532
"	Blanket	m	1,000	1,324	1,345	1,157
"	Cotton yarn	Kg	83,000	89,102	84,000	72,587

Chongjin Textile Mill	Rayon	lb	125	125 <sup>00</sup>	126	110 <sup>25</sup>
"	Concentrated Sodium sulphate	"	333	121 <sup>450</sup>	334	604 <sup>145</sup>

Kilchu Pulp Mill	Rayon pulp	"	400	285	400	334 <sup>75</sup>
"	Foreign paper	"	914	433 <sup>5</sup>	624	515 <sup>163</sup>

Pyeongyang Chemical Factory	Staple fibre	"	160	166	115	106 <sup>31</sup>
"	Sodium sulphate	"	590	637	910	786 <sup>608</sup>
"	Carbon bisulphide	"	45	85	77	106
"	Anhydrous sodium sulphate	"	50	0	20	87 <sup>18</sup>

Pyeongyang Corn Products Factory	Edible dextrin	"	1,300	1,405 <sup>2</sup>	1,000	6477
"	Maltodextrin	"	60	274 <sup>2</sup>	45	201

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Pyeongyang Silk textile mill	Silk goods	M	21,000	11,145 <sup>5</sup>		
"	Occidental clothing material woven	M	10,000	5,669 <sup>5</sup>	24,040	34,842
"	Silk twills	M	32,500	15,657 <sup>5</sup>	25-11	29,576 <sup>5</sup>
"	Rayon gauze	M	5,000	2,544	10,000	10,000
"	Raw silk	Kg	6,700	5,683	6,600	6,357 <sup>79</sup>
"	Twist yarn	"	425	632	325	462 <sup>35</sup>

Chongjin Oil Press	Soyabean oil	⊥	420	683	520	593
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Hampho Oil Press	Cottonseed oil	"	60	64 <sup>84</sup>	60	74 <sup>15</sup>
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Sinuiju Oil Press	Soyabean oil	⊥	233	224	283	312 <sup>593</sup>
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Hampho Silk textile mill	Figured lawn	M	15,500	4,661	0	165-
"	Figured silk	"	10,195	5,531	0	487
"	Figured satin	"	18,520	4,350	0	365
"	Silk twills	"	59,370	32,029	0	1437
"	Rayon twills	"	10,000	2,040	59,710	29,591
"	Rayon plain tissue	"	20,000	6,067	112,090	84,025

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Chart of  
Transmission Lines

1947

as of 31 December

Office of Electricity,  
Bureau of Industry

## Contents

## Statistics of Power Transmission Lines

1. Statistics of transmission lines under the control of the Office of Electricity

Statistics of transmission lines under the control of

The North West Distributing Division  
 The North East Distributing Division  
 The Pyöngyang Transmitting Division  
 The Höchöngang Power Generating Division  
 The Changjingang Power Generating Division  
 The Pujöngang Power Generating Division  
 The Central Bureau of Electrical Industry

2. Specifications of Lines

Specifications of 220 KV transmission lines .....				1
"	154 KV	"		1.3
"	110 KV	"		3
"	66 KV	"	5.7 11, 13, 15, 17	
"	44 KV	"		11
"	22 KV	"		19
"	11 KV	"		39
"	35 KV	"		39

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Power Transmission Lines under the control of  
the office of Electricity

Kind	By Voltages (KV)							Remarks
	"	22	44	66	110	154	220	Total
Elevated line	4.7	258,136	16,110	3,244,976	690,549	577,121	669,096	2,389,614
Underground		93						93
Total	4.7	258,229	16,203	3,248,220	690,549	577,121	669,096	2,389,707
Elevated line	14.1	451,668	12,504	1,116,434	3,173,321	2,019,019	2,988,129	2,988,129
Underground		12.9						12.9
Total	14.1	451,668	12,504	1,116,434	3,173,321	2,019,019	2,988,129	2,988,129
Single pole	54	2,036	296	200				2,632
Double pole	18	6,974	29	1,353				8,356
Line pole		84		312				396
Iron tower	2	40		1,461	1,463	1,463	1,463	5,829
Permanent	1	602						602
Total	78	12,476	325	2,846	2,846	2,846	2,846	15,256

Power Transmission Lines under the control of  
the North West Distributing Division

Kind	By Voltages (KV)							Remarks
	"	22	44	66	110	154	220	Total
Elevated line	4.7	1,041,644	18,112	1,244,976				2,284,732
Underground		1,550						1,550
Total	4.7	1,043,194	18,112	1,244,976				2,286,282
Elevated line	14.1	1,162,317	4,004	2,019,019				3,185,340
Underground		4,516						4,516
Total	14.1	1,166,833	4,004	2,019,019				3,190,856
Single pole	54	1,346	200	200				1,746
Double pole	18	2,254	29	1,353				3,936
Line pole		60		312				372
Iron tower	2	36		2,070				2,106
Permanent	4	602						602
Total	78	16,360	319	17,665				36,344

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Power Transmission Lines under the Control of  
The Fujengang Power Generating Division

Kind	By Voltages (KV)						Total	Remarks
	11	22	44	66	110	154	220	
Elevated line				48.3	150.8			199.1
Underground								
Total				48.3	150.8			199.1
Elevated line				145	178.2			323.2
Underground								
Total				145	178.2			323.2
Single pole								
Double pole				303	13			316
Non pole					660			660
Non tower								
Non-conduct								
Total				303	673			976

Power Transmission Lines under the control of  
The Central Bureau of Electrical Industry

Kind	By Voltages (KV)						Total	Remarks
	11	22	44	66	110	154	220	
Elevated line		222.81		269.36		11.8		503.97
Underground								
Total		222.81		269.36		11.8		503.97
Elevated line		618.44		1339.27		90.8		2096.57
Underground								
Total		618.44		1339.27		90.8		2096.57
Single pole		1254						1254
Double pole		1562		135				2697
Non pole				185				185
Non tower		86		444		35		565
Non-conduct								
Total		2902		2104		35		5041

Power Transmission Lines under the control of  
the North-East Distributing Division

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Kind	By Voltages (KV)							Total	Remarks
	3.5	22	44	66	110	220			
Line with insulation	459	180,650		1,054,715				1,062,293	
Line without insulation		218						218	
Total	459	180,868		1,054,715				1,062,511	
Line with insulation	2,068	2,849,000		2,024,667				4,941,667	
Line without insulation		218						218	
Total	2,068	2,849,218		2,024,667				4,941,885	
Single pole	215	2,012						2,012	
Double pole		2,953						2,953	
Single pole		2						2	
Double pole		66						66	
Insulators									
Total	215	3,033						3,248	

Power Transmission Lines under the control of  
the Hingyang Distributing Division

Kind	By Voltages (KV)							Total	Remarks
	11	22	44	66	110	220			
Line with insulation					465	2,016		2,481	
Line without insulation									
Total					465	2,016		2,481	
Line with insulation					2,016	1,885		3,901	
Line without insulation									
Total					2,016	1,885		3,901	
Single pole									
Double pole									
Single pole									
Double pole					1,370	765		2,135	
Insulators									
Total					1,370	765		2,135	



[illegible][illegible]

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Passing structures	Name of Transmission Line	Section	Type of Line	No. of Circuit lines	No. of Wires	Electric Wire Kind	Thickness (mm)	No. of Circuits	Span (m)	Distance between Poles (m)	Supporting poles						
											Line tower	Non pole	Other	Other			
220 KV																	
N.S. Pyongyang	Pyongyang	Pyongyang	Pyongyang	1995	1	220	60	ST 7/2.82 AL 54/2.82	3	536.3	991	300	74	503	Hat-Tori	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	749	1	220	60	ST 7/2.82 AL 54/2.82	3	233.7	875	300	74	185	"	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	385	1	220	60	ST 7/2.82 AL 54/2.82	3	118.5	892	300	74	102	"	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	2939						885.5	991	300		465		-	-
N.S. Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	1831	1	220	60	ST 7/2.82 AL 54/2.82	3	525.1	1029	300	74	493	"	-	-
Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	3475	1	220	60	ST 7/2.82 AL 54/2.82	3	104.0	1115	300	74	93	"	-	-
Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	1237	1	220	60	ST 7/2.82 AL 54/2.82	3	104.3	1050	300	74	673.1	"	-	-
"	"	"	"	1237	1	220	60	ST 7/2.82 AL 54/2.82	3	383.1	900	300	74	352	"	-	-
"	"	"	"	1766	1	220	60	ST 7/2.82 AL 54/2.82	3	24	503	300	74	201	"	-	-
Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	365495						1096519	1115	300		1304		-	-
Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	659361						2009.019	1115			6795		-	-
154 KV																	
N.S. Hachon Chong	Hachon Chong	Hachon Chong	Hachon Chong	1994	2	154	60	ST 7/3.1 AL 34/3.1	6	1199.4	923	300	4.8	619	Hat-Tori	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	193	2	154	60	ST 7/4 AL	6	103.9	875	300	74	64	"	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	1875	2	154	60	ST 7/2.93 AL 34/2.93	6	1124.7	995	300	5.1	526	"	-	-
Pyongyang	Pyongyang	Pyongyang	Pyongyang	603	1	154	60	ST 7/3.1 AL 34/3.1	3	180.9	895	300	48	162	"	-	-
Total				465						2	608.8	995		1371		-	-

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Location	Name of transmission line of Central Bureau	Section	No. of circuits	No. of poles	No. of stages	Voltage KV	Electric wire (mm)	Extent (km)	Distance between poles (m)	Supporting poles		
										Non tower	Non pole	
Handong	Handong Plant	2	154	60	ST 3/2.49	6	247.6	300	5.7	116	-	
"	"	1	154	60	ST 3/2.49	3	247.6	300	5.7	220	-	
"	"	22/					247.6	300	5.7	358	-	
Handong	Handong Plant	2	154	60	ST 3/2.49	6	247.6	300	5.7	35	-	
"	"	22/					247.6	300	5.7	358	-	
South East	Taegu Plant	2	154	60	ST 3/2.49	6	107.9	341	300	5.6	548	-
"	Taegu Sub	2	154	60	ST 3/2.49	6	358.3	603	300	5.4	213	-
"	Seoul Sub	2	154	60	ST 3/2.49	6	103.3					-
"	N S Koryang Sub	2	154	60	ST 3/2.49	6	440					-
"	Chingong Sub	2	154	60	ST 3/2.49	6	410					-
"	Handong Plant	2	154	60	ST 3/2.49	6	764					-
110 KV												
Handong	Kigok Plant	2	40	60	ST 3/2.49	6	187.9	559	350	3.4	113	-
"	Handong Plant	2	110	60	ST 3/2.49	6	714.6	954	200	3.5	447	-
"	Handong Plant	2	40	60	ST 3/2.49	6	267	650	250	3.7	156	-
"	Handong Plant	1	110	60	ST 3/2.49	3	189	355	300	3.65	16	-
"	Handong Plant	1	110	60	ST 3/2.49	3	192	580	350	2.6	20	-

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7 - 1922, <sup>Osaka</sup> ST <sup>Perseus</sup> 732 1 2 Nov 4 1928 Perseus  
Anon. Smith

	ST	7/2	1	1	ST	6	4	1973	1970
1	5	1000	-	ST	7/2	1	1	1973	1970
2	8	1000	-	ST	7/2	1	1	1973	1970
3	10	1000	-	ST	7/2	1	1	1973	1970
4	12	1000	-	ST	7/2	1	1	1973	1970
5	14	1000	-	ST	7/2	1	1	1973	1970
6	16	1000	-	ST	7/2	1	1	1973	1970
7	18	1000	-	ST	7/2	1	1	1973	1970
8	20	1000	-	ST	7/2	1	1	1973	1970
9	22	1000	-	ST	7/2	1	1	1973	1970
10	24	1000	-	ST	7/2	1	1	1973	1970
11	26	1000	-	ST	7/2	1	1	1973	1970
12	28	1000	-	ST	7/2	1	1	1973	1970
13	30	1000	-	ST	7/2	1	1	1973	1970
14	32	1000	-	ST	7/2	1	1	1973	1970
15	34	1000	-	ST	7/2	1	1	1973	1970
16	36	1000	-	ST	7/2	1	1	1973	1970
17	38	1000	-	ST	7/2	1	1	1973	1970
18	40	1000	-	ST	7/2	1	1	1973	1970
19	42	1000	-	ST	7/2	1	1	1973	1970
20	44	1000	-	ST	7/2	1	1	1973	1970
21	46	1000	-	ST	7/2	1	1	1973	1970
22	48	1000	-	ST	7/2	1	1	1973	1970
23	50	1000	-	ST	7/2	1	1	1973	1970
24	52	1000	-	ST	7/2	1	1	1973	1970
25	54	1000	-	ST	7/2	1	1	1973	1970
26	56	1000	-	ST	7/2	1	1	1973	1970
27	58	1000	-	ST	7/2	1	1	1973	1970
28	60	1000	-	ST	7/2	1	1	1973	1970
29	62	1000	-	ST	7/2	1	1	1973	1970
30	64	1000	-	ST	7/2	1	1	1973	1970
31	66	1000	-	ST	7/2	1	1	1973	1970
32	68	1000	-	ST	7/2	1	1	1973	1970
33	70	1000	-	ST	7/2	1	1	1973	1970
34	72	1000	-	ST	7/2	1	1	1973	1970
35	74	1000	-	ST	7/2	1	1	1973	1970
36	76	1000	-	ST	7/2	1	1	1973	1970
37	78	1000	-	ST	7/2	1	1	1973	1970
38	80	1000	-	ST	7/2	1	1	1973	1970
39	82	1000	-	ST	7/2	1	1	1973	1970
40	84	1000	-	ST	7/2	1	1	1973	1970
41	86	1000	-	ST	7/2	1	1	1973	1970
42	88	1000	-	ST	7/2	1	1	1973	1970
43	90	1000	-	ST	7/2	1	1	1973	1970
44	92	1000	-	ST	7/2	1	1	1973	1970
45	94	1000	-	ST	7/2	1	1	1973	1970
46	96	1000	-	ST	7/2	1	1	1973	1970
47	98	1000	-	ST	7/2	1	1	1973	1970
48	100	1000	-	ST	7/2	1	1	1973	1970

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Suspension Insulator	Elevated and Ground wire	Safety Transmission	Facilities	No. of contact	Location	Kind	Notes of electrical tests	Remarks
Serial Number	Kind	No. of conductors	Kind and section of conductor	No. of contact	Location	Kind	Notes of electrical tests	Remarks
7	23464		1936					
4	5 15298	2	4.5 " 4				1942	2
4	5 7249	2	4.5 " 4					2
4	5 9048	1	4.5 " 4					2
4	5 1030	2	4.5 " 4					2
	15076		119					
4	5 685	2	3.2 " 4				1936	-
4	5 2238	2	4.5 " 4				1939	-
4	5 1636	1	8.12 " 4					2.5
4	5 570	2						2
4	5	1	4 " 4				1946 12	2
	5429		62911					
4	5 2990	1	22.9 " 4				1939 6	2.2
4	5 180	1						2.5
4	5 185		986	4			1939 12	2.2

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No. of Station	Kind and Section of Cable	Telephone Lines (mm)	Kind (mm)	Length (km)	No. of Circuit lines	Thickness (mm)	Elevated and Ground wires (mm)	Kind	Thickness (mm)	No. of Circuit lines	No. of Station	Neutral Contact Point Location	Kind Ohm to KVA	Date of Installation	Remarks
4	5	6730	-	-	-	55	4	-	-	-	-	-	-	1938	1.8
4	5	1110	-	-	-	10.7	4	-	-	-	-	-	-	1938	2.2
4	5	11850	ST	7/2.6	1	111.2	4	-	-	6	Juyongni Substation	25/2	1938	2.6	
4	5	1845	-	-	-	26.5	4.5	-	-	2	-	-	-	1940	2.6
4	5	1200	-	-	-	15	4	-	-	-	-	-	-	1943	2.2
4	5	319	ST	7/2.6	1	142	4	-	-	-	-	-	-	1940	2.6
4	5	1551	-	-	-	4.6	4	-	-	-	-	-	-	1939	2.6
4	5	123	-	-	-	-	-	-	-	2	-	-	-	1938	2.6
4	5	1408	ST	7/2.6	1	56.3	4	-	-	2	-	-	-	1935	2.1
4	5	3388	ST	7/2.6	1	54	4	-	-	-	Hayin Substation	16.00	1935	2.1	
4	5	10074	ST	7/2.6	1	50.3	4	-	-	-	-	-	-	1936	2.1
4	5	7104	ST	7/2.6	1	25	4	-	-	-	-	-	-	1936	1.8
4	5	342	ST	7/2.6	1	31.5	4	-	-	-	-	-	-	1936	12
4	5	7585	ST	7/2.6	1	935	4	-	-	3	Kyejong	1/100	1937	2.1	
4	5	1048	-	-	-	2	6.3	4	-	-	-	-	-	1936	2
4	5	456	ST	7/2.6	1	4	4	-	-	-	-	-	-	1936	1.7
4	5	ST	7/2.6	1	-	-	-	-	-	-	-	-	-	1943	2.6

No. of poles	Distance between poles	Supporting poles		Non pole	Boric number	Maker	No. of conductors	Circuit line	No. of poles	Type of wire	Gauge (inches)	Weight (lb/1000 ft)	Resistance (ohms/1000 ft)	Inductance (mH/1000 ft)	Capacity (pF/1000 ft)	Remarks
		Standard	Non-standard													
Section	Name of line	Type of line	No. of conductors	Circuit line	No. of poles	Type of wire	Gauge (inches)	Weight (lb/1000 ft)	Resistance (ohms/1000 ft)	Inductance (mH/1000 ft)	Capacity (pF/1000 ft)	Remarks				
Pyawgyi	Nando Sub.	Pyawgyi Sub.	2	66	60	Copper	7/3.6	6	34.388	38	200	16	277	Ko	-	-
"	"	Nampo No. 1 Sub.	2	66	60	"	7/2.9	6	16.48	289	220	2.3	15	Hat	-	-
"	"	No. 2 Light Metal	1	66	60	"	7/2.9	3	12057	210	100	-	-	-	30	Teeding 7
"	"	No. 1 Light Metal	2	66	60	"	7/2.9	6	2896	218	200	2.3	26	Hat	-	-
"	"	Light Metal	1	66	60	"	7/2.9	3	3255	100	100	-	-	-	-	11
"	"	Refinery	2	66	60	"	7/2.6	6	27.48	289	220	2.9	25	Ko	-	-
"	"	No. 2 Connection	1	66	60	"	7/2.6	3	6329	120	100	-	-	-	4	Teeding 19
"	"	Nampo No. 2 Con.	1	66	60	"	7/2.6	3	3.51	110	100	-	-	-	2	" 10
"	"	Zinc Kwaichem	1	66	60	"	7/2.6	3	1899	110	100	-	-	-	-	5
"	"	Turbo Nampo 119	1	66	60	"	7/2.6	3	14.1	210	100	-	-	-	-	41
"	"	Kings Nampo 138	1	66	60	"	5	3	16.64	135	100	-	-	-	-	58
"	"	Chemical Nampo 159	2	66	60	"	7/2.6	6	15.636	140	100	-	-	-	-	26
"	"	Sengam Nampo 173	1	66	60	"	7/2.6	3	23.139	360	225	1.8	21	Hat	-	11
"	"	Sengam Nampo 206	2	66	60	"	7/2.9	6	12004	1105	220	1.6	80	"	-	-
"	"	Chohak Sengam	1	66	60	"	7/2.6	3	9.628	200	100	-	-	-	-	32
"	"	Sengam Chohak	1	66	60	"	7/2.9	3	57.9	301	100	1.5	4	-	-	544
"	"	South Pyawgyi	2	66	60	"	7/2.6	3	46.832	350	220	1.6	350	Hat	-	-

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Suspension Insulator		Elevated & ground lines		Safety transmission facilities		No. of steel struts		Neutral Contact Point		Date of construction		Remarks
Serial Number	Approximate total number of insulators	Kind	Thickness (inches)	No. of lines	Length (ft)	Kind	Section of cable	Kind	Ohm to KVA	Year	Month	
9 4 5	7202	ST	7/26	1	1	52.692	AL 7.2	-	-	1933	12	2.1
4 5	385	ST	7/26	1	1	2.3	AL 7.2	-	-	1941		2.2
4 5	582	ST	-	-	-	-	-	-	-	1942	9	2.6
4 5	1596	ST	7/26	1	1	4202	Steel 4	-	-	1943	1	2.2
4 5	162	"	-	-	-	-	-	-	-	1942	7	2.7
4 5	264	ST	7/26	1	1	4202	Steel 4	-	-	1942	12	2.3
4 5	630	"	-	-	1	3.1	AL 3.2	-	-	1935	4	2
4 2	546	"	-	-	-	-	-	-	-	1942	5	2
4 5	125	"	-	-	-	-	-	-	-	1940	5	2.2
4 5	649	"	-	-	1	4860	Steel 4	-	-	1928	10	2
4 5	1136	"	-	-	5	8200	Steel 4	-	-	1937	5	2
4 5	1508	"	-	-	1	3096	-	-	-	1944	12	2
4 5	2085	ST	7/26	1	1	2.33	" 4	-	-	1943	6	2.4
4 5	2080	ST	7/26	1	1	20399	" 4	-	-	1941	6	2.4
4 5	348	ST	-	-	1	2687	" 4	-	-	1943	10	2
4 5	348	ST	-	-	2	37.6	" 4	-	-	1943	10	2.5
4 5	1058	ST	7/26	1	1	28	" 4	-	-	1945	7	2.7

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Suspension Insulator Serial Number	Make Type Material	Elevated and Ground wires Kind (H.M.)	Length (ft.)	Height (ft.)	Weight (lb.)	Kind of Insulator	Kind of Material	Kind of Construction	Kind of Location	Kind of KVA	Chart of the road arrangement of electric lines given here	Remarks
4 5 2100	Japan Insulator	ST 726	1	1	-	-	-	-	-	-	1935 2.5	
4 5 1450	"	ST 726	1	1	44	mm 4	-	-	-	-	1935 2.5	
4 5 180	"	ST 726	1	1	114	4	-	-	-	-	1935 2.2	
4 5 1400	"		1	11	4	-	-	-	-	-	1935 2.2	
4 5 2550	"		1	1986	4	-	-	-	-	-	1943 2.6	
	14000			705.7								Equipped in 1948
4 5 480	Japan Insulator	-	-	2	705	mm 4	-	-	3	-	1940 2.6	
4 5 5550	"	-	-	2	55.75	4	-	-	2	-	1940.3 2.2	
4 5 30	"	-	-	-	-	4	-	-	-	-	1940 2.2	
4 5 3090	ST 726	1	1	39.6	4	-	-	-	-	-	1937 2.7	
4 5 6500	"	-	-	2	692	4	-	-	Unson Sub.	-	1940 2.2	
4 5 24939	"	-	-	2	12714	4	-	-	Unson Sub.	-	1939 2.2	
4 5 6349	Antsu Kage	-	-	2	38902	4	-	-	4	-	1939 2.6	
4 5 6132	"	-	-	2	41955	4	-	-	3	-	1940 2.6	
4 5 60984	Insulator	-	-	1	2	4	-	-	1	-	1941 2.6	

66 KV (Loji System)

(Kingpin System) 122.57 1 2/42 3

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217

Suspension Insulator		Elevated and ground wires		Safety Transmission Facilities		Mutual Contact Point		Chart of Standard Requirements of Electric Wire & Ground Wire		Remarks	
Serial number	Kind	Kind	Kind	No. of Circuit Line	No. of Circuit Line	Kind	Kind	Kind	Kind	Date	
4	5	812	-	-	2	4428	4	-	5	1939	2.6
11	4	5	578	7/26	1	29.2	4	-	-	1937	2.2
4	5	11588	-	-	2	63.7	4	-	-	1930	2.6
4	5	30	-	-	2	0.6	4	-	-	"	2.6
4	5	2056	-	-	2	48.7	4	-	5	1941	2.6
4	5	3035	-	-	1	12.5	4	-	3	1941	2.6
4	5	1941	ST	7/26	1	19.8	4	-	-	1957	2.6
		102201				80.574					
4	5	2900	ST	7/23	1	23.9	4	-	3	1933	2.1
4	5	1547	ST	7/23	1	14.4	4	-	2	1932	2.1
4	5	4010	-	-	1	21.6	4	-	3	1936	2.6
4	5	2554	ST	7/23	1	45.8	4	-	4	1937	2.6
4	5	510	-	-	1	4	4	-	-	1947	2.6
		16601				112.7					
4	5	1304	ST	7/26	1	69.7	4	-	3	1936	2.6

177  
220

Province	Section	Line (km)	Circuit lines	No. of Poles	Frequency (KHz)	Electric wire (mm)	No. of Circuit lines	No. of Poles	Distance between poles (m)	Supporting poles				Total		
										Iron tower	Concrete	Wood	Other			
North Giang	Thang-Su	42	1	55	60	Copper 1/2.6	3	126	289	130	1.6	226	7/4	-	-	-
East Giang	Thang-Su	0.6	1	55	60	" 1/2.6	3	1.8	100	100	-	-	-	-	-	8
"	Thang-Su	0.5	1	66	60	" 1/2.6	3	1.5	100	100	-	5	8/4	-	-	-
"	Thang-Su	22.6	1	66	60	" 1/2.6	3	6.95	250	250	1.3	105	1/4	-	-	-
"	Thang-Su	12.5	1	66	60	" 1/2.6	3	8.1	221	220	1.5	105	1/4	-	-	-
"	Thang-Su	30.1	1	66	60	" 1/2.6	3	7.3	210	150	1.4	105	1/4	-	-	-
"	Thang-Su	2.1	2	66	60	ST 1/2.4 AL 1/42.4	6	7.28	722	250	2.5	42	1/4	-	-	-
"	Thang-Su	0.5	2	66	60	Copper 1/2.6	6	2.8	100	50	1.6	5	8/4	-	-	-
"	Thang-Su	38.7	1	66	60	" 1/2.6	6	11.6	300	100	-	-	-	-	-	-
"	Thang-Su	42.6	1	66	60	" 1/2.6	3	13.4	100	-	-	-	-	-	-	-
"	Thang-Su	11.2	1	2	66	60	ST 1/2.4 AL 1/42.4	8	42	574	250	2.1	24	1/4	-	-
"	Thang-Su	36.72	2	66	60	ST 1/2.4 AL 1/42.4	6	22.0	700	250	2.1	124	-	-	-	-
"	Thang-Su	12.2	1	66	60	Copper 1/2.6	3	12	250	250	1.4	9	-	-	-	-

Total 3242

1315

1125

66 KV (Kilohu System)

East Giang	Kilohu Sub	46.6	1	66	60	Copper 1/2.3	3	52.7	290	10	-	-	-	-	-	440
East Giang	Kilohu Sub	20.8	1	66	60	1/2.6	3	62.4	250	100	1.4	4	1/4	-	-	182

22)

Suspension Indicator	Serial Number	Approximate Date Installed	Elevated and Ground Wires (in in)	Safety Ground No. of Lines	Transmission Length (km)	Telephone Lines (in in)	Teletype Lines (in in)	Kind and Section of Line	No. of Stations	Neutral Contact Location	Kind Ohm or KVA	Chart of Standard electrical values of construction	Remarks
	5	4200		1	30.1	2			1			1934 1	2.5
	5	150		1	5.7				1			1941 12	2.5
	5	191		1	0.5				1			1943 9	2.5
	5	2175		1	2.2				1			1945 12	2.6
	5	1499		1	1.4				1			1941 2	2.6
	5	3730	ST 1/2.3	1	2.4				3			1940 12	2.5
	5	3200	ST 1/2.9	1	1.0							1939 4	2.3
	5	2400	ST 1/2.3	1	6.4							1940 9	2.3
	5	4000		2	4.5								2.6
	5	4500		1	4	4.5			2				33KV being used.
	5	1400	ST 1/2.9	1	2	7.5			4				
	5	9500	ST 1/2.9	1	2	38.2			4			1939 9	2.3
	5	2500											
					308.3								
		4600											
	5	5755		1	42.8	200			4			1938 7	2.6
	5	4448		1	2.29							1937 7	2.3

222  
7/2

Section	No. of Circuit lines	Length (Km)	No. of poles	Electric wire (Km)	Distance between poles (m)	Supporting poles					Location
						Iron tower	Iron pole	Wooden pole	Electric pole	Other	
Total	644			2021		4					622
(Hockungang System)											
Hockungang gong	148	1	66	60	72.6	3	44.29	300	100	-	123
" Ungi gong	223	1	66	60	72.3	3	105.4	300	100	-	268
North Kien East Kien	563	1	66	60	72.3	3	15.55	297	110	-	205
" Hien Sub.	227	1	66	60	72.6	3	298.2	300	100	-	457
" Hien Sub.	144	1	66	60	72.6	3	47.2	300	100	-	147
" Hien Sub.	763	1	66	60	72.6	3	22.9	300	100	-	7
" Nalung Sub.	5327	1	66	60	72.6	3	5983	300	100	-	453
" Nalung Sub.	0.62	1	66	60	72.6	3	18.6	250	100	-	3
Total	2647			9825		8					6204
(Pongung System)											
Hangung Kamde	1.5	2	66	60	72.6	3	45.5	200	2.2	45	-
" Hangung Sub.	391	1	66	60	72.6	3	112.3	300	100	-	203
" Hangung Sub.	59	2	66	60	72.6	3	53.4	300	2.4	40.5	-
" Hangung Sub.	11.0	1	66	60	72.6	3	39.5	295	90	-	295
" Hangung Sub.	10	1	66	60	72.6	3	300	200	100	-	96

223.13

Suspension Insulator	Elevated and Ground wires	Safety transmission facilities	Neutral contact point	Construction	Remarks
Serial Number	Maker	No. of Circuit lines	Kind	Kind Ohm or KVA	Chart of standard equipment of electric wire & ground wire
4 5 9803	Osaka Electric	71.7			
4 5 2281	Kichan	4 1443	1100		1938 1 2.6
4 5 4508	Kichan	4 36.12	" 4	8000	1939 12 2.6
4 5 5520	"	1 52.29	" 4		1939 5 2
4 5 14006	"	2 81.8	" 4		1939 7 2
4 5 2939	"	1 14.3	" 4		1939 7 2.6
4 5 1400	"	1 8.4	" 4		1943 12 2.6
4 5 3990	"	1 39.96	" 4		1939 8 2
4 5 "	"	" 4			1939 7 2
3602		2903			
4 5 2154	Gata ST	7/2.6 1 2 2.5	" 4		1937 2 2.6
4 5 6274	Kichan Insulated	2 392	" 4		1941 1 2.6
4 5 16644	" ST	7/2.6 1 2 90.9	" 4		1930 1 3.8
4 5 2100	"	1 10	" 4		1936 9 2.6
4 5 2220	"	4.0	" 4		1946 11 2.6

224

Province	Circuit No.	Section	No. of poles	Electric wire Kind	No. of conductors	No. of cores	Thickness (mm)	Distance between poles (m)	Supporting poles				Total
									Iron tower	Iron pole	Other		
North Chungcheong	335	North Chungcheong Sub	66	60	Copper	7/2.6	3	100	290	100	-	4	305
North Chungcheong	243	North Chungcheong Sub	66	60	"	7/2.6	3	732	290	100	-	-	210
North Chungcheong	243	North Chungcheong Sub	66	60	"	7/2.6	3	94	300	100	-	-	246
North Chungcheong	259	North Chungcheong Sub	66	60	"	7/2.6	3	109.8	292	100	-	-	318
North Chungcheong	223	North Chungcheong Sub	66	60	"	7/2.6	3	21.7	170	100	-	-	41
North Chungcheong	219	North Chungcheong Sub	66	60	"	7/2.6	3	2.1	226	132	-	-	4
Total								11345	461		1319		
(Changjin-gang System)													
North Chungcheong	458	North Chungcheong Sub	66	60	Copper	7/2.6	3	155	150	100	43	2	359
North Chungcheong	75	North Chungcheong Sub	66	60	"	7/2.6	3	225	223	85	-	-	89
North Chungcheong	435	North Chungcheong Sub	66	60	"	7/2.6	3	13.6	290	100	-	-	422
North Chungcheong	184	North Chungcheong Sub	66	60	"	7/2.6	3	25.2	433	100	-	2	157
North Chungcheong	305	North Chungcheong Sub	66	60	"	7/2.6	3	46.0	190	100	-	-	13
North Chungcheong	499	North Chungcheong Sub	66	60	"	7/2.6	3	284	225	70	-	-	964
North Chungcheong	439	North Chungcheong Sub	66	60	"	7/2.6	3	15.3	162	60	-	-	65
Total								699.63	4		35	2757	

2257

Suspension Insulator Serial Number	Type of Insulator	Material	Elevated and ground wire	Safety Transmission Facilities	No. of Lines	No. of Stations	Neutral Contact Point	Kind Ohm to KVA	Date of Construction	Remarks
4	5	5351	Japan Insulator	2	34	4			1939 1	2.6
"	5	4336	Matou page	2	23	1/2			1939 11	2.6
"	5	6521	Japan Insulator	2	3/35	4			1940 11	2.6
"	5	28.2	"	2	36	4			1940 11	2.6
"	5	1999	"	2	72	4			1940 11	2.6
"	5	145	"						1946 12	2.6
		53406								
4	5	6125	-	-	2	35759	Japan	-	1933 12	2.6
"	5	1742	-	-	1	7.8	"	-	1941 1	2.6
"	5	7481	-	-	2	4058	"	-	1939 11	2.6
"	5	3152	-	-	1	19	"	-	1940 12	2.6
"	5	2774	-	-	-	-	"	-	1941 2	2.6
"	5	18029	-	-	2	17398	Japan	4.0	1939 7	2.6
4	5	1290	-	-	1	4746	Japan	4.0	1939 7	2.6
		62912			204569					

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Feeding provides	Name of Transmission Line	Section	No. of Circuit Line	No. of KV	Frequency	Electric wire Kind	Distance between poles		Supporting Poles		Deed in	
							Height (m)	Span (m)	Non Tower	Double Pole		
(Kangwondo System)												
King- won	Chunglaeri Tosongni Sub.	83.6	2	66	60	1/2	5	501.42	101	2	48	-
"	Wang-Tosongni Sub.	21.2	2	66	60	1/2	6	72.54	12	19	156	-
"	Chonglaeri Chonglaeri Sub.	22	1	66	60	1/2	3	4.4	12	91	-	23
"	Chonglaeri Chonglaeri Sub.	3.8	1	66	60	1/2	3	9	48	100	-	37
"	Samang Sub.	37	2	66	60	1/2	3	222.15	100	15	59	395
"	Chonglaeri Chonglaeri Sub.	3.8	1	66	60	1/2	3	4.4	12	91	-	42
"	Chonglaeri Chonglaeri Sub.	17.2	1	66	60	1/2	3	24.8	21	70	-	16
"	Chonglaeri Chonglaeri Sub.	23.9	1	66	60	1/2	3	4.4	12	91	-	258
"	Chonglaeri Chonglaeri Sub.	15.8	1	66	60	1/2	3	4.4	12	91	-	128
Total							1332.77		784	185	1135	
66 KV Total							13.0822		5461	362	9353	



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Suspension Line (Lat)	Serial Number	Elevated and Ground Lines	Safety Transmission Facility	No. of Sections	No. of Sections	Neutral Contact Point	Construction	Date	Chart's standard positioning of ground lines	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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	Kind	Kind	Kind	Kind	Kind	Kind	Kind	Kind	Kind	Kind

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Routing Provinces	Center (Bureau Name of Line)	Name of Transmission Line	Section	Circuit Length (km)	No. of Circuits	Max. Voltage KV	No. of Poles	Electric wire				Distance between poles		Supporting Poles							Total Length	
								Kind	Thickness (mm)	Code	Extent (km)	Maximum (m)	Standard (m)	Iron tower	Wood tower	Basic tower	Maker	Material	Material			
Pyangon Nando	North West	Kang- dong Kangdong Circuit	Singhor	10.110	1	44	60	2/1.0	50	3	24.104	20	55	-	-	-	-	-	-	289		
			Singhor	1550	1	44	60	-	7/2.3	3	4654	56	212	-	-	-	-	-	-	36		
			Singhor	15218	1	44	60	-	7/2.3	3	4654	56	212	-	-	-	-	-	-	325		
			Total	15218							4654											
22 KV																						
Pyangon Nando	North West	South Sinsang Sub.	Yangsi	72	1	22	50	16/1.0	7/1.8	3	2850	95	60	-	-	-	-	-	-	5	14	
			Ninh	50	1	22	50	-	7/2.6	3	1437	186	60	-	9	Hat Tori	-	-	-	-	49	
			Sangdon	726	1	22	50	-	5.0	3	2984	620	60	-	3	"	-	-	-	-	125	
			Sangdon	726	1	22	60	-	7/2.3	3	5742	260	60	-	-	-	-	-	-	-	48	-
			Chungdon	726	1	22	60	-	7/2.3	3	57400	270	60	-	-	-	-	-	-	-	196	
			Taptong	726	1	22	60	-	7/2.0	3	6519	300	100	-	-	-	-	-	-	-	250	
			Ungok	726	1	22	60	-	5.0	3	37.63	109	70	-	-	-	-	-	-	-	126	
			Sinsang	726	1	22	60	-	7/2.3	3	34.255	260	60	-	-	-	-	-	-	-	134	-
			Samsong	726	1	22	60	-	7/2.0	3	25.277	200	100	-	-	-	-	-	-	-	136	
			Ungung	726	1	22	60	-	7/2.0	3	10767	100	100	-	-	-	-	-	-	-	57	
			Tacwon	726	1	22	60	-	7/2.3	3	25.875	250	60	-	-	-	-	-	-	-	115	
			Kusong	726	1	22	60	-	7/2.6	3	4490	300	60	-	-	-	-	-	-	-	524	
			Koan	726	1	22	60	-	7/5.6	3	29240	118	55	-	-	-	-	-	-	-	147	

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Suspension Insulator		Potticant Insulator		Ground wire		Security Communication Equipment		Neutral Contact Point		Remarks
Serial Number	Trans. Suspension	Material	Size (inches)	Kind	Material	Telephone Lines	Kind	Location	Kind	
6						1 1368	40			July 1940
4	5	42	1/4	Insulator	Insulator	1 7550	"	40		July 1940
3	36	36	1/4	Insulator	Insulator	1 5000	"	2.2		July 1940
2	3	400	"			1 2450	"	3.2		Jan. 1939
2	3	40	"	3/4						Jan. 1939
		32	1/4	Insulator	Insulator	1 2920	"	4.0		July 1940
		15	"	1/4		1 1960	"	4.0		July 1940
3	3	205	1/4	Insulator	Insulator	1 2103	"	4.0		July 1940
		64	"	1/4		1 1221	"	4.0		Nov. 1938
		32	1/4	Insulator	Insulator	1 1205	"	4.0		July 1940
2	3	126	"	400		1 877	"	4.0		Sept. 1940
3	3	126	"	418		1 8297	"	4.0		Sept. 1940
		120	1/4	Insulator	Insulator					Sept. 1940
		1737	1/4	Insulator	Insulator	1 3285	"	4.0		July 1940
		243	"	183		1 8668	"	4.0		Dec. 1941

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Suspension Insulator		Potential Insulator	Ground Wire	Security	Communication	Equipment	Number of Sockets, Stations	Cord Station	Neutral Contact Point	Remarks
Serial Number	Technical Number	Maker	Kind	Length (ft)	Kind	Technical Number	Kind	Location	Kind O/km to KVA	Date of use
2	3	306	1498	1	4002	100	3/2.0	USA		Feb 1934
		234	149	1	5014	"	4.0			Feb 1938
		209	149	1	1392	"	2.6			1.9
2	3	301	609	1	11308	"	4.0			1
2	3	251	811	1	12356	"	4.0			1
2	3	974	1132	1	31887	"	4.0	1		Jan 1935
		162	497	1	10930	"	3.2			1.5
		96	884	1	10107	"	3.2			July 1941
		93	874	1	14049	"	3.2	1		Dec 1943
		711	1302	1	29901	"	4.0			Aug 1944
		360	301	1	3128	"	4.0			Aug 1936
							72.0			2.4
2	3	1525	153	1	12046	"	4.0	1		July 1937
2	3	1204	976	1	2125	"	4.0			1937
2	3	180	133	1	13700	"	4.0	Independent		Dec 1940
2	3	675	631							July 1941

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Suspension Insulator		Pillcoat Insulator	Ground Wire	Security Communication Equipment	Telephone Lines	Neutral Contact Point	Remarks
Serial Number	Material	Material	Material	Material	Material	Material	Material
Material	Material	Material	Material	Material	Material	Material	Material
2 3	56 H/100 300	1000	1 9199	40	add.	1934	1.2
	18 H/100 210	1000	1 8199	40	add.	1934	1.2
2 3	23 H/100 716	1000	1 1199	40	"		1.2
2 3	22 H/100 935	1000	1 1199	40	"		1.2
2 3	186 H/100 1199	1000	1 1199	40	add.	1934	1.2
2 3	9 H/100 310	1000	1 1199	40	"	1940	1.2
2 3	27 H/100 1670	1000	1 1638	40	"	1939	1.2
2 3	32 H/100 290	1000	1 8264	40	"	1939	1.2
2 3	90 H/100 14962	1000	1 1416	40	"	1939	1.2
2 3	45 H/100 500	1000	1 1024	40	"	1939	1.2
2 3	130 H/100 165	1000	1 5868	40	"	1938	1
2 3	180 H/100 175	1000	1 3428	40	"	1938	1.2
2 3	168 H/100 1333	1000	1 31024	40	"	1840	1

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Locality	Section	Name of line	Length (Kilo)	Circuit kind	No. of poles	Frequency Kc	Electric wire Kind	Extent (Kilo)	No. of conductors	Distance between poles (m)	Supporting Poles				Mileage
											Standard (m)	Iron tower	Wooden	Concrete	
Pyeonggang Branch	Total		2000					600				2	76		221
Pyeonggang North	Chonchon	Sub	5699	1	22	60	Copper	2.0	3	12037	1247	50			106
Pyeonggang North	Chonchon	Sub	1047	1	22	60	"	2.0	3	30057	142	50			137
Pyeonggang North	Chonchon	Sub	2097	1	22	60	"	1.5	3	6057	73	60			341
Pyeonggang North	Chonchon	Sub	2097	1	22	60	"	2.6	3	5617	140	50			505
Pyeonggang North	Chonchon	Sub	2097	1	22	60	"	2.6	3	5617	140	50			1286
Pyeonggang North	Total		5312					24096				7	76		5940
Pyeonggang North	Total		35837					1053788							
Hoang North	Song Chonchon	Sub	449	1	22	60	Copper	2.3	3	1332	16	80			576
Hoang North	Song Chonchon	Sub	169	1	22	60	"	1.0	3	50	17	80	1.5	2	314
Hoang North	Song Chonchon	Sub	169	1	22	60	"	1.0	3	50	17	80			84
Hoang North	Song Chonchon	Sub	169	1	22	60	"	1.0	3	50	17	80			324
Hoang North	Song Chonchon	Sub	206	1	22	60	"	1.0	3	50	17	80			516
Hoang North	Song Chonchon	Sub	345	1	22	60	"	1.0	3	50	17	80			343
Hoang North	Song Chonchon	Sub	203	1	22	60	"	1.0	3	50	17	80			370
Hoang North	Song Chonchon	Sub	736	1	22	60	"	1.0	3	50	17	80			77
Hoang North	Song Chonchon	Sub	66	1	22	60	"	1.0	3	50	17	80			635
Hoang North	Song Chonchon	Sub	378	1	22	60	"	1.0	3	50	17	80			189
Hoang North	Song Chonchon	Sub	1095	1	22	60	"	1.0	3	50	17	80			

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Name of Project	Location	Type of Project	Distance between poles	Electric Wire	Kind	Gauge	Length (ft)	Weight (lb)	Supporting Poles				Notes		
									Number	Material	Height	Spacing			
Huang North - Hae West	Haejudo Haejudo	1	22	60	Copper	1/2.3	3	28.8	183	90	-	-	17	101	96
"	Jultong Haejudo	1	22	60	"	1/2.3	3	109	90	-	-	-	5	"	94
"	Kyau Haejudo	1	22	60	"	1/2.0	3	35	90	75	-	-	-	-	34
"	Tung Samchon	1	22	60	"	1/2.0	3	15.7	109	80	-	-	-	-	263
"	Hagyon Samchon	1	22	60	"	1/2.3	3	12.3	150	80	-	-	-	-	77
"	Kyau Samchon	1	22	60	"	1/2.0	3	74.6	50	80	-	-	-	-	124
Haejudo Branch Total								84,502				22		4305	
North West Distributing Division								1065,899				36	162	6.2	15,660
Grand Total															
"	North Haejudo	1	22	60	Copper	1/2.6	3	8.803	130	60	-	-	-	-	25
Haejudo Branch Total								8,803				22		9330	
Kang Central - Hae West	Haejudo	1	22	60	Copper	1/2.4	3	10.41	100	65	-	-	-	-	521
"	Haejudo	1	22	60	"	1/2.3	3	5.89	120	50	-	-	-	-	354
"	Haejudo	1	22	60	"	1/2.6	3	9.6	155	65	-	-	-	-	66
"	Haejudo	1	22	60	"	1/2.6	3	9.9	100	50	-	-	-	-	16
"	Haejudo	1	22	60	"	1/2.0	3	57.	109	59	3	86	Haejudo	-	-
Haejudo Branch Total								46.5	284	50	-	-	-	-	232
"	Haejudo	1	22	60	"	1/2.3	3	10.3	119	60	-	-	-	-	388
"	Haejudo	1	22	60	"	1/2.3	3	3.4	28	50	-	-	-	-	149

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Suspension Insulator	Serial Number	Type (Number)	Ground Insulator	Kind	Circuit Lines	No. of Wires (ends)	Height (m)	Telephone Lines	Kind	Security Communication Equipment	Number of Cord Relations	Neutral Contact Point	Remarks
	2	3	590	Insulator		1	33.6	100	4.0	add			Feb 1943 1
	3	4	336	"		1	35.0	"	4.0	"	3		Dec 1943 1.1
	2	3	1189	"		1	8.74	"	4.0	"			Dec 1941 1.1
	2	3	467	"		1	1.88	"	2.2	"			Nov 1947 11
	3	4	259	"		1	11.3	"	4.0	"			Feb 1945 1.5
	2	3	419	"		1	13.77	"	4.0	"			April 1944 1
			21252	4401			22.3.54						
	2	3	18	"		1	4.150	100	4.0	add			Jan 1943 1
	2	3	90	"		1	1.777	"	4.0	"			Nov 1939 1
	3	4	2714	"		1	14.500	"	4.0	"			July 1937 2.6
	2	3	226	"		1	11.200	"	4.0	"			Aug 1936 1
	2	3	316	"		1	5.407	"	4.0	"			Aug 1942 1
	2	3	168	"		1	7.300	"	4.0	"			Dec 1939 1
	2	3	2867	"		1	5.945	"	4.0	"			Aug 1939 1
	2	3	435	"		1	2.998	"	4.0	"			Feb 1936 1
	2	2	174	"		1	3.840	"	4.0	"			Feb 1945 1
	2	4	2146	"		1	13.600	"	4.0	"			Nov 1938 1

Section	Name of Transmission Line	Name of Circuit Breaker Protecting Line	Length (km)	Number of Circuit Lines	Max. Voltage (kV)	Insulators per Span	Electric Wire Kind	Distance between poles	Supporting Poles							
									Standard (110)	Max. (110)	Max. (110)	Max. (110)	Max. (110)	Max. (110)		
															Standard (110)	Max. (110)
Woman Branch (Kangwondo) Total									288.554	1164						
Kangwondo Total									906.334	3980						
Woman Branch (Kangwondo)	North Ullim	Unhyang Sub	6.400	1	22	60	Copper	7/2.6	3	12.200	298	50	-	-	-	576
	Chinhyang	Unhyang Sub	11.025	1	22	60	"	7/2.6	3	39.200	125	50	-	-	-	220
	Sunglung Ullim	Unhyang Sub	6.145	1	22	60	"	7/2.6	3	36.25	298	50	-	-	-	3
	Kewon	Unhyang Sub	2.626	1	22	60	"	7/2.6	3	28.300	290	50	-	-	-	625
	Kewon Ullim	Unhyang Sub	9.200	1	22	60	"	7/2.6	3	11.600	245	50	-	-	-	151
	Kewon Ullim	Unhyang Sub	9.400	1	22	60	"	7/2.6	3	28.200	250	50	-	-	-	156
	Chinhyang	Unhyang Sub	5.600	1	22	60	"	7/2.6	3	16.800	270	50	-	-	-	113
	Unhyang	Unhyang Sub	1.905	1	22	60	"	7/2.6	3	15.10	225	50	-	-	-	200
	Unhyang	Unhyang Sub	1.080	1	22	60	"	7/2.6	3	32.400	157	50	-	-	-	215
	Pompo	Unhyang Sub	5.0	1	22	60	"	7/2.6	3	15.246	180	50	-	-	-	800
	Unhyang	Unhyang Sub	1.846	1	22	60	"	7/2.6	3	21.0	140	55	-	-	-	159
	Unhyang	Unhyang Sub	1.084	1	22	60	"	7/2.6	3	37.23	215	60	-	-	-	147
	Sinsang	Unhyang Sub	8.9	1	22	60	"	7/2.6	3	26.800	288	60	-	-	-	141
	Unhyang	Unhyang Sub	0.117	1	22	60	"	7/2.6	3	30.24	86	60	-	-	-	161
	Woman Branch (Hantwei/Wando) Total									515.323	2864					
Hantwei/Wando Total									758.877	9128						



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Name of City/Province provided	Name of Line of transmission	Location	Number of conductors (line)	KV	Max. Voltage	Bo. #	Tension wires	Electric Wire Kind	Thickness (mm)	Gauge (mm)	Sp. (mm)	No. of wires	Distance between poles	Supporting Poles					Vertical Height
														Non Tower	Portable	Transverse	Vertical		
Hamgyong Nampo	North East	(2) Chonghyon Sinsang Sub	167	1	22	60	Copper	6.5	3	50.1	71	50	-	-	-	-	-	301	
	"	Chonghyon Sinsang Sub	151	1	22	60	"	6.5	3	53.4	120	50	-	-	-	-	-	29	
	"	Yonho Chonghyon Sub	132	1	22	60	"	7/2.3	3	128	59	50	-	-	-	-	-	81	
	"	Sindok Sinsang Sub	60	1	22	60	"	7/2.0	3	120	132	50	-	-	-	-	-	117	
	"	Chonbul Pujok Sub	132	1	22	60	"	7/2.0	3	41.4	302	45	-	-	-	-	-	154	
	"	Pungnam Chonbul Sub	72	1	22	60	"	7/2.0	3	21.6	337	45	-	-	-	-	-	102	
	"	Unpo Chonghyon Sub	0.5	1	22	60	"	5.0	3	15	50	50	-	-	-	-	-	11	
	"	Hongju Chonghyon Sub	20.1	1	22	60	"	7/2.6	3	603	65	50	-	-	-	-	-	195	
	"	Songhoi Hongju Connection Sub	9.4	1	22	60	"	7/2.0	3	28.2	242	50	-	-	-	-	-	126	
	"	Chinho Hongju Sub	297	1	22	60	"	7/2.6	3	89.1	199	50	-	-	-	-	-	509	
	Hanlung Branch Total 1254													3762	-	2	-	-	1928
	Hamgyong Nampo	North East	Tokto Chonam Sub	18732	1	22	60	"	7/2.3	3	361.6	300	50	-	-	-	-	-	283
"		Hangdok Dangdok Sub	8090	1	22	60	"	7/2.3	3	242.0	240	50	-	-	-	-	-	144	
"		Hakso Wangyang Sub	9388	1	22	60	"	7/2.3	3	1173	116	50	-	-	-	-	-	5	
"		Yangju Pukto Sub	16481	1	22	60	"	7/2.3	3	894.3	237	50	-	-	-	-	-	316	
"		Yangang Oneng Sub	3331	1	22	60	"	7/2.3	3	98.73	238	50	-	-	-	-	-	57	
"		Pudong Wungdok Sub	2657	1	22	60	"	7/2.3	-	2950	80	50	-	-	-	-	-	40	

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Suspension Insulator		Wire	Security	Communication	Equipment	Number of	Neutral	Kind	Remarks
Serial Number	Insulator	Wire	Security	Communication	Equipment	Number of	Neutral	Kind	Remarks
3	186	Osaka Osaka	1	100H	0.5	0.9	Nov. 1935	0.9	
3	300	119	1	35		1	March 1935	1	
2	3	36	1	4.2	4.0	1	May 1939	1	
2	3	36	1	6.0	4.0	1	Dec. 1944	1	
2	3	9	1	13.8	4.0	0.85	Dec. 1931	0.85	
2	3	9	1	7.2	4.0	0.85	May 1939	0.85	
2	3	3 1/2	1	7.2	4.0	1	Aug. 1941	1	
2	18	45	1	6.5	4.0	1	Jan. 1941	1	
2	3	1790	1	40.1	4.0	1	Jan. 1941	1	
2	3	693	1			0.9	April 1945	0.9	
3	178	Osaka Osaka	1	287	7/50	1		1	
4	5	1133	1	18,732	4.0	1.2	Dec. 1947	1.2	
2	3	555	1	8,040	4.0	1.2	July 1939	1.2	
3	155		1	3900	4.0	1	July 1940	1	
2	3	116	1	3835	4.0	1	July 1942	1	
3	3	132	1	3358	4.0	1	Dec. 1937	1	
3	90		1	2650	4.0	1	Dec. 1937	1	

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Province	Name of Line	Place of Construction	Section	Length (km)	Number of Circuit Lines	No. of Poles	Max. Voltage	Electric Wire				Distance between poles	Supporting Poles							Meters
								Kind	Thickness (mm)	No. of Cables	Ext. wt (kg)		Non Tower	Non Pole	Trans-concrete	Other	Other	Other		
Hamgyong North	Yongdong	Kondok Sub.	3421	1	22	60	Copper	7/23	3	10267	210	50	-	-	-	-	-	-	97	
Hamgyong North	Yongdong	Kondok Sub.	3421	1	22	60	Copper	7/23	3	10267	210	50	-	-	-	-	-	-	25	
"	"	Sungju Sub.	1864	1	22	60	"	7/23	3	5292	60	50	-	-	-	-	-	-	20	
"	"	Toksong Sub.	1033	1	22	60	"	7/23	3	3769	200	50	-	-	-	-	-	-	267	
"	"	Ungdok Sub.	22113	1	22	60	"	7/23	3	4339	265	50	-	-	-	-	-	-	92	
"	"	Ungdok Sub.	2491	1	22	60	"	7/23	3	4523	265	50	-	-	-	-	-	-	213	
"	"	Wangyang Sub.	13747	1	22	60	"	7/23	3	4442	158	50	-	-	-	-	-	-	39	
"	"	Pukto Sub.	14802	1	22	60	"	7/23	3	6306	158	50	-	-	-	-	-	-	91	
"	"	Sokku Sub.	121	1	22	60	"	7/23	3	363	575	70	-	4	-	-	-	-	247	
"	"	Pukcheong Sub.	12800	1	22	60	"	7/23	3	384	172	70	-	-	-	-	-	-	252	
"	"	Sinpuksong Sub.	111	1	22	60	"	7/23	3	5280	300	60	-	-	-	-	-	-	35	
"	"	Juon Sub.	22	1	22	60	"	7/23	3	66	130	60	-	-	-	-	-	-	65	
"	"	Kondok Mine	1056	1	22	60	"	7/23	3	1023	100	50	-	-	-	-	-	-	2385	
Tanchon Branch (Harmon)										538443			4	-	-	-	-	-	229	
Total 186640													-	-	-	-	-	-	137	
Hamgyong North	Yongdong	Songju Sub.	4643	1	22	60	Copper	7/23	3	4329	174	60	-	-	-	-	-	-	125	
"	"	Optok Sub.	5454	1	22	60	"	7/23	3	23362	160	60	-	-	-	-	-	-	608	
"	"	Wansok Sub.	456	1	22	60	"	7/23	3	2548	300	60	-	-	-	-	-	-	608	
"	"	Agan Sub.	4178	1	22	60	"	7/23	3	2574	250	60	-	-	-	-	-	-	608	

Suspension Insulator		Particulars of Insulator	Ground wire	Security Communication Equipment					Number of Lead Sections	Neutral Contact Point		Date of use	Remarks
Serial Number	Technical Number			No. of Circuit Lines	Length (Kms)	Telephone Lines	Kind	Kind		Kind	Chm or KVA		
2	3	100 Hi		1	1681	Iron	4.0	-	add			Sept 1937	1
	3	12 "		1	1814	"	4.0	-	"			Nov 1942	1
2	3	12 "		1	1323	"	4.0	-	"			June 1937	1
2	3	728 "		1	2215	"	4.0	-	"			Nov 1942	1.2
	3	108 "		1	2441	"	4.0	-	"			Dec 1939	1.2
2	3	1250 "		1	23225	"	4.0	-	"			Dec 1942	1.2
2	3	270 "		1	5750	"	4.0	-	"			Sept 1937	1.2
3	4	663 "		1	1201	"	4.0	-	"			June 1937	1.2
2	3	186 " 884 Hi		1								July 1939	1.2
3	4	3408 " 47 "										Aug 1939	1.2
3	3	465 "		1	22	Iron	4.0	-	add			Dec 1939	1.2
2	3	734 " 642 Hi		1	10764	"	4.0	-	"			May 1939	1.2
2	3	763 "		1	14693	Iron	4.0	-	"			Dec 1942	1.2
2	3	264 "		1	8454	"	4.0	-	"			Dec 1942	1.2
2	3	324 "		1	8456	"	4.0	-	"			Aug 1943	1.2
2	3	120 "		1	4058	"	4.0	-	"			July 1944	1.2

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Province	Circuit Name	Length (km)	Circuit Type	Voltage (KV)	Electric Wire	Distance between poles	Supporting Poles				Total
							Wood	Steel	Concrete	Other	
Hamgyong Bukdo	North Kang Kyong East Pak Sub	29.3	1	22	60	7/2.3	3	88.29	50	-	447
"	North Kang Kyong East Pak Sub	18.5	1	22	60	"	5.0	3	55.59	450	292
"	Pakson Kilchu Sub	19.6	1	22	60	"	5.0	3	57.98	450	18
"	Kilchu Sub	9.32	1	22	60	"	7/2.3	3	29.96	150	150
"	Sajong Sub	6.208	1	22	60	"	7/2.3	3	18.62	280	103
Tanchon Branch (Hamgyong Bukdo)					303.417						2123
Total 10/08/1					846.86		4				4508
Tanchon Branch Total 28/699											6
Hamgyong Bukdo	North Pugo Kwanghae Sub	0.310	1	22	60	7/2.3	5.0	3	6.30	50	-
"	Kwanghae Sub	50.60	1	22	60	"	7/2.3	3	152.40	298	402
"	Tomakong Sub	9.1	1	22	60	Steel core cable	7/2.3	3	25.17	50	169
"	Imjin Sub	2.3	2	22	60	Steel core cable	7/2.3	6	14.7	200	20
"	Pansu Sub	4.9	2	22	60	Steel core cable	7/2.3	6	29.0	159	85
"	Yanghyon Sub	4.1	1	22	60	"	7/2.3	3	12.8	175	69
"	Chunam Sub	14.7	1	22	60	"	7/2.3	3	44.2	240	156
"	Odajin Sub	42.4	1	22	60	"	7/2.3	3	128.3	335	679
"	Narvan Sub	20.1	1	22	60	"	5.0	5	60.2	200	353
"	Tonghae Sub	5.1	2	22	60	"	7/2.3	6	30.5	335	159
"	Chungdo Sub	43.32	1	22	60	"	7/2.3	3	92.96	55	259

Suspension Insulator		Retreat Insulator	Ground Wire	Security	Communication	Equipment	Number of Cord Stations	Neutral Contact Point	Kind	Date	Remarks
Serial Number	Material	Material	Kind	No. of Circuit Lines	Telephone Lines	Kind and use in street and in country	Kind and use in street and in country	Location	Ohm or KVA		
2 3 1370	Hi. dachi	-	-	1	29323	Jun 4.0	-	Add	-	Dec 1942	1.2
2 3 324	"	-	-	1	18803	" 4.0	-	-	-	Oct 1943	1.2
2 3 156	" 12 Hi. dachi	-	-	1	1926	" 4.0	-	-	-	June 1943	1.2
2 3 156	" 22 Hi. dachi	-	-	1	1926	" 4.0	-	-	-	June 1943	1.2
2 3 156	" 276 "	-	-	1	6208	" 4.0	-	-	-	March 1942	1.2
2 2 10	Osaka Porcelain	-	-	1	0310	" 4.0	-	Add	-	Sept. 1943	0.93
4 5 1594	"	-	-	1	53545	" 4.0	-	Inde. pendant	-	Jan. 1936	2.6
2 200	Osaka Japan Insulator	-	-	1	9.1	" 4.0	-	Add	-	-	1.5
3 20	" 120 "	-	-	1	3.3	4.0	-	"	-	-	1.5
	760 "	-	-	1	5.0	" 4.0	-	"	-	-	1.5
	270 "	-	-	1	4.3	" 4.0	-	"	-	-	1.5
2 3 882	328 "	-	-	1	14.7	" 4.0	-	Add	-	-	1.5
2 3 350	2650 "	-	-	1	345	" 4.0	-	"	- 3	-	2.3
2 3 50	1300 "	-	-	1	18.3	" 4.0	-	Add	- 2	-	2.3
2 3 780	Osaka Porcelain	-	-	1	4.0	" 4.0	-	"	-	-	2.3
2 3 168	Osaka Japan Insulator	-	-	1	14332	" 4.0	-	"	-	Aug. 1949	1

Name of Line or Circuit	Section	Length (km)	Number of Circuit Lines	Frequency Max Voltage	Kind	Thickness (mm)	No. of Cords	Distance between poles		Supporting Poles				Wooden	
								Maximum (m)	Standard (m)	Non Tower Standard (m)	Non Pole Standard (m)	Non Tower Standard (m)	Non Pole Standard (m)		
Hanggyong North Hae Buldo East	Hanggyong Sub.	1900	1	22 60	Copper	2.6	3	2018	240	50	-	-	-	-	52
" " Tong-Chengsing gund	Tonggyon Sub.	1928	1	22 60	"	5.0	3	2077	210	50	-	-	-	-	134
" " Seama	Seama Sub.	1991	1	22 60	"	5.0	3	2077	210	50	-	-	-	-	3
" " Seama-Chengsing gund	Seama Sub.	1955	1	22 60	"	5.0	3	2015	195	50	-	-	-	-	193
" " Chok-Big	Chok-Big Sub.	2000	1	22 60	"	5.0	3	600	120	60	-	-	-	-	333
Chengjin Branch Total		2169						61	2	-	-	-	-	-	2401
Tonghae District Division Grand Total		86283						26240	18	2	-	-	-	-	13465
Hanggyong Buldo		30771						153887	66	2	-	-	-	-	5024
Hanggyong Hae Nando gang	Hanggyong Sub.	2427	1	22 60	Copper	2.6	3	30832	50	-	-	-	-	-	469
Hanggyong Hae Nando Total		50221						150228	6	-	-	-	-	-	2146
11 KV															
Pyeong North Yuseong Nando West	Yuseong Sub.	117	1	11 60	Copper	2.6	3	51	700	50	-	-	-	-	4
35 KV															
Kang North Nando East	Samdaeri Sub.	989	1	35 60	Copper	5	3	29688	110	45	-	-	-	-	215



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Suspension Insulator	Power Insulator	Ground Wire	Security Circuit	Communication Line	Unit Type	Section Number	Conducting Material	Neutral Contact	Point	Date of use	Remarks
Serial Number	Power Insulator	Ground Wire	Security Circuit	Communication Line	Unit Type	Section Number	Conducting Material	Neutral Contact	Point	Date of use	Remarks
2 3	162	191	2	1000	32	Ind. pend.	2	-	-	Jan. 1934	1
2 3	179	392	-	-	-	-	3	-	-	Jan. 1939	1
2 3	6	9	1	1000	40	Ind.	-	-	-	July 1943	1
2 3	158	414	1	1000	40	"	2	-	-	March 1937	1
2 2	570	1000	1	2000	9.0	"	2	-	-	1947	1
5	480	2582	2	2378	4.0	Ind. pend.	-	-	-	Dec. 1939	1
2 2	72	Hi Anchi	-	-	-	-	-	-	-	-	-
2	138	1650	-	9896	7	-	-	-	-	April 1938	0.85

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# Supply of Electricity

20 November 1950

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor or Indoor	Cooling Method	Phase	Frequency	Number			Remarks
			1st	2nd	3rd						Common use	Spare	Maker	
Pukchung Machine	45300	22650	66	2.3		△-△	Outdoor	Self cooling	3	60	2	1	Shibaura	Machine
"	48600	24300	"	"		"	"	"	3	"	2	1	"	"
"	10000	1000	"	3.3		"	"	"	3	"	1		Meiden	"
Chŏngsu	51000	28000	"	0.15		"	"	"	3	"	2		Fuji	Chemistry
"	10000	5000	"	3.3		"	"	"	1	"	2		Shibaura	"
"	1500	500	22	"		"	"	"	1	"	3		Hidachi	"
Sŏnghori	6000	2000	66	44	22	"	"	"	1	"	3	1	Fuji	
Sŏnghori	600	200	22	3.3		"	"	"	1	"	3		Shibaura	
"	300	100	22	3.3		"	"	"	1	"	3		Hidachi	
Kunjari	1050	350	66	3.3		"	"	"	1	"	3	1	"	
Sŏngchŏn	1050	350	"	22	3.3	"	"	"	1	"	3	1	"	
Inpyŏng	1500	500	"	"	"	Y-△	Q	"	1	"	3	1	Shibaura	
"	600	200	22	3.3		△-△	"	"	1	60	3		"	
Hŏngnyŏng	1500	500	66	3.3		"	"	"	1	"	3		Hidachi	
Sunan	1800	600	"	"		"	"	"	1	"	3	1	"	
Sinchŏn	600	200	22	"		"	"	"	1	"	3	1	Shibaura	
Sukchŏn	450	1500	66	22		"	"	"	1	"	3	1	Hidachi	
"	1270	700	"	3.3		V-V	"	"	1	"	2		Shibaura	
"	1200	200	22	3.3		△-△	"	"	1	"	6		"	
Sinanju	3000	1000	66	22		△-△	"	"	1	"	3	1	Nishijima	
"	2700	300	22	3.3		"	"	"	1	"	9	1	Shibaura	
Kaechŏn	6000	2000	66	22		"	"	"	1	"	3	1	"	
"	700	300	22	3.3		"	"	"	1	"	3	1	"	
"	700	50	"	"		"	"	"	1	"	3	1	"	
Sunchŏn	2250	750	66	22		"	"	"	1	"	3	1	"	
"	900	300	22	3.3		△-△	"	"	1	60	3		"	
"	450	150	"	"		"	"	"	1	60	3		Osaka	
"	860	500	66	22		"	"	"	1	"	2		Hidachi	
"	150	50	22	3.3		"	"	"	1	"	3		Shibaura	
Tŏkchŏn	450	150	66	3.3		"	"	"	1	"	3		Osaka	
Chunghwa	600	200	22	3.3		"	"	"	1	"	3		Hidachi	
Tonghwa	900	300	22	"		"	"	"	1	"	3		Osaka	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common	Spare		
Chongnyong	450	150	22	3.3		Δ-Δ	Outdoor	Self cooling	1	60	3	1	Osaka	
Mirim	300	100	22	3.3		"	"	"	1	"	3	1	Fuji	
Yongyu	1200	200	"	"		"	"	"	1	"	6	1	"	
Namyang	900	300	"	"		"	"	"	1	"	3	1	Nishijima	
"	300	100	"	"		"	"	"	1	"	3	1	Hidachi	
Chasong	2100	700	66	22	3.3	"	"	"	1	"	3	1	Shibaura	
Pongchon	450	150	22	3.3		"	"	"	1	"	3	1	Nishijima	
Yongdam	600	200	"	"		"	"	"	1	"	3	1	"	
Hallyong	450	150	"	"		"	"	"	1	"	3	1	Shibaura	
"	300	100	"	"		"	"	"	1	"	6	1	"	
Sinchang	1800	300	"	"		"	"	"	1	"	2	1	"	
Taepyong	866	500	66	22		V-V	"	"	1	"	3	1	"	
"		750	"	"		"	"	"	1	"	3	1	"	
"	150	50	22	3.3		Δ-Δ	"	"	1	60	3	1	"	
Pukchin	2250	750	66	22	3.3	"	"	"	1	"	3	1	"	
Samgo	1500	500	"	22		"	"	"	1	"	3	1	"	
"	600	200	22	3.3		"	"	"	1	"	6	1	"	
Pakchon	1200	200	22	"		"	"	"	1	"	3	1	Shibaura	
Yongdang	600	200	22	"		Δ-Δ	"	"	1	"	3	1	Hidachi	
Myohyangsan	300	100	"	"		"	"	"	1	"	3	1	Osaka	
"		60	"	"		"	"	"	1	"	3	1	Shibaura	
Songpyong	600	200	"	"		"	"	"	1	"	2	1	"	
Parwon	2250	750	66	22		V-V	"	"	1	"	3	1	Nishijima	
"	300	100	22	3.3		Δ-Δ	"	"	1	"	3	1	Hidachi	
Maengchungni	3000	1000	66	22	3.3	"	"	"	1	"	3	1	"	
"	600	200	22	3.3		"	"	"	1	"	3	1	Shibaura	
Yongmi	100	300	22	3.3		"	"	"	1	"	3	1	"	
Unsan	100	200	"	"		"	"	"	1	"	6	1	"	
Wili	600	100	"	"		"	"	"	1	"	3	1	Shibaura	
Toksan	600	300	22	3.3		"	"	"	1	60	2	1	Germany	Cement
Mandal	3750	1895	44	"		"	Indoor	Water cool- ing	1	60	2	1	"	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor or	Cooling Method	Phase	Frequency	Number			Remarks
			1st	2nd	3rd						Common Use	Spare	Maker	
Mandal	600	100	44	3.3		Δ-Δ	Outdoor	Self cooling	1	60	6			Cement
"		300	66	"		"	"	"	1	"		3	Nishijima	"
Kangdong	750	250	44	"		"	"	"	1	"	3	1	Hidachi	Coal Mine
"	150	50	"	"		"	"	"	1	"	3	4		"
"		75	"	"		"	"	"	1	"	3			"
"		100	"	"		"	"	"	1	"		6		"
"		50	"	"		"	"	"	1	"		3		"
Singho Cement	3600	1200	66	"		"	"	"	1	"	3	1		"
Toksan	1500	500	"	"		"	"	"	1	"	3		Hidachi	"
Hamhung	4500	1500	"	"		"	"	"	1	"	3	3		Mine
Kongpo	516	300	"	"		V-V	"	"	1	"	3	1		Cableway
Suan	3000	1000	"	"		Δ-Δ	"	"	1	"	3	3	Hidachi	Gold Mine
Holtong	1200	400	"	"		"	"	"	1	"	3	1	"	"
Sunchon Chemistry	17300	6000	"	"		V-V	"	"	1	"	4		Takaoka	Chemistry
"	6000	600	"	"		Δ-Δ	"	"	3	"	1		"	"
"	1500	500	"	"		"	"	"	1	"	3		Fuji	"
Tokchon Coal Mine	1500	500	"	"		"	"	"	1	"	3	1	Hidachi	Coal Mine
Taeyudongq	2250	750	"	22	3.3	"	"	"	1	"	3	4		Mine
Taesong	600	200	22	3.3		"	"	"	1	"	3		Fuji	"
Changnim	1200	200	"	"		"	"	"	1	"	6	1	Hidachi	"
Anju Coal Mine	4500	1500	66	"		"	"	"	1	"	3	1		Coal Mine
"	900	300	22	3.3		"	"	"	1	"	3	1	"	"
Unhung	600	200	"	"		"	"	"	1	"	3		Shibaura	Pumping
Chondong	600	300	"	"		"	"	"	1	60	3		Osaka	Mine
Kumsong	600	300	"	"		"	"	"	1	"	3			Irrigation
Yongwon	400	900	"	"		"	"	"	1	"	3		Shibaura	Iron Mine
Yongmun	950	150	"	"		"	"	"	1	"	3	1	"	Mine
Unsan Mine (Pukchin)	2250	750	66	22	3.3	"	"	"	1	"	3	1		"
"		300	22	3.3		"	"	"	1	"		8		"
Unsan Mine (Chollil)	750	250	"	"		"	"	"	1	"	3			"
Unsan Mine (Sambong)	260	650	"	"		"	"	"	1	"	2			"

Name of Substations	Output KVA	Capacity KVA	Voltage 1st 2nd 3rd	Connecting Method	Outdoor or Indoor	Cooling Method	Phase	Frequency	Number Common use	Spare	Maker	Remarks
Unsan Mine (Kamsuryong)	450	150	22 3.3	Δ-Δ	Outdoor	Self cooling	1	60	3			Mine
Unsan Mine (Yichon)	300	100	" "	"	"	"	1	"	3			"
Unsan Mine (Wontam)	1500	50	11 "	"	"	"	1	"	3			Coal
"		75	" "	"	"	"	1	"		3		"
"		100	" "	"	"	"	1	"	2	3		"
Namdong (No.1)	4500	1500	66 22 3.3	"	"	"	1	"	3	1	Hidachi	
"	1500	500	" "	"	"	"	1	"	3		Shibaura	
Namdong (No.2)	4500	1500	" " 3.3	"	"	"	1	"	3	1	Osaka	
"	3000	1000	" 3.3	"	"	"	1	"	3	1	Hidachi	
Torori	3000	1000	" "	"	"	"	1	"	3	1	Fuji	
Taepyong	500	300	22 "	"	"	"	1	"	3		Shibaura	
Kangson	500	300	" "	"	"	"	1	"	3		Fuji	
Wonsu	520	150	" "	V-V V-V	"	"	1	"	4		Shibaura Mitsubishi	
Udngni	300	100	" "	Δ-Δ	"	"	1	"	3		Hidachi	
Machamni	87	50	" "	V-V	"	"	1	"	2		"	
Machamni	87	50	" "	"	"	"	1	"	2		Osaka	
Machamni	450	150	" "	Δ-Δ	"	"	1	"	3		Hidachi	
Chonghori	300	100	22 3.3	"	"	"	1	"	3		Shibaura	
Pungchong	600	200	" "	"	"	"	1	"	3		"	
Mundong	173	100	" "	V-V	"	"	1	"	2		"	
Chinjidong	1500	600	66 3.3	Δ-Δ	"	"	1	"	3		Hidachi	
Kangson Steel Mill	15000	6000	" 11	"	"	"	1	"	3		Mitsubishi	Steel
"	15000	5000	11 "	"	"	"	1	"	3		"	"
Kiyang Water for industry	600	200	22 "	"	"	"	1	"	3		Fuji	"
Taepo	750	250	11 3.3	"	"	"	1	"	3	1	Shibaura	Coal Mine
Nampo Zinc Refinery	10500	3500	" "	"	"	"	1	"	3	1	Hidachi	Refinery
Nampo Chemistry	1500	500	" "	"	"	"	1	"	3		"	Chemistry
Nampo Light Metal (No.1)	25000	12500	66 11	"	"	"	3	"	2	2	Meiden	Light Metal
(No.2)	12000	4000	" 3.3	"	"	"	1	"	3		Fuji	"

Name of Substations	Output KVA	Capacity KVA	Voltage 1st 2nd 3rd	Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number Common Use Spare	Maker	Remarks
Kiyang	10000	10000	66 11	△-△	Outdoor	Self Cooling	3	60	1	Fuji	Chemistry
Chemistry	1500	500	" 22	"	"	"	1	"	3	Shibaura	"
"	600	200	22 3.3	"	"	"	1	"	3	"	"
Taealli	5070	5000	66 11	V-V	"	"	1	"	2	Shibaura	
"		2000	" 3.3	△-△	"	"	1	"	4	"	
"	3000	1000	11 "	"	"	"	1	"	3	1	"
Kanggye	4500	1500	66 "	"	"	"	1	"	3	Osaka	
"		500	" "	"	"	"	1	"	4	Shibaura	
Munam	2250	750	" "	"	"	"	1	"	3	Meiden	
Pyŏlha	172	100 50	" "	V-V	"	"	1	"	100x1 50x2	Hidachi	
Manpo	1300	750	" "	"	"	"	1	"	2	"	
Unbong	566	500	" "	"	"	"	1	"	2	"	
Sijung	86	50	" "	△-△	"	"	1	"	2	Osaka	
Unsong	2250	750	66 22	V-△	"	"	1	"	3	1 Shibaura	
"	300	100	22 3.3	△-△	"	"	1	"	3	"	
Ansil	1300	750	66 "	V-V	"	"	1	"	2	"	
Chungam	600	200	22 "	△-△	"	"	1	"	3	1 Hidachi	
Koin	300	100	" "	"	"	"	1	"	3	Shibaura	
"		50	" "	"	"	"	1	"	4	Hidachi	
Manari	1500	500	66 3.3	"	"	"	1	"	3	"	
Koam	1500	500	" "	Y-△	"	"	1	"	3	"	
Sinwŏn	1500	500	66 22	△-△	"	"	1	"	3	"	
Pangdanmyŏng	1200	200	22 3.3	"	"	"	1	"	6	"	
Tongam	2250	750	66 "	"	"	"	1	"	3	1 Shibaura	
Chŏngha	1500	500	" 22	"	"	"	1	"	3	1	"
"	173	100	22 3.3	V-V	"	"	1	"	2	"	
Yŏnhadong	1500	750	11 33	"	"	"	1	"	3	Hidachi	
	1300	500	66 33	△-△	"	"	"	"	"	"	
Chŏsan	225	75	22 3.3	"	"	"	1	"	6	Osaka	
Tongnogang	173	100	11 "	V-V	"	"	1	"	2	"	
Unsiŏ	300	100	22 "	△-△	"	"	1	"	3	Hidachi	
Haeju	3600	1200	66 22 3.3	Y-△-△	"	"	1	"	3	1	"

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Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common Use	Spare		
Songnim	200	50150	66	3.3		V-V	Outdoor	Self Cooling	1	60	2		Shibaura Osaka	
"	300	100	"	"		"	"	"	1	"	3		Osaka	
Sariwon	2250	750	"	22		"	"	"	1	"	2		Shibaura	
"	3100	700	"	3.3		"	"	"	1	"	3		Hidachi	
"	2580	1500	"	"		V-V	"	"	1	"	2			
Namchon	2250	750	"	22 3.3		"	"	"	1	"	3	1	"	
Chaeryong	3460	1000	"	"		V-V	"	"	1	1	4		Shibaura	
"	2250	750	"	"		"	"	"	1	60	3	1	Fuji	
"	900	300	20	3.3		"	"	"	1	"	3		Shibaura	
Kyejong	4500	1500	66	22		X-Y	"	"	1	"	3	1	Hidachi	
"	173	100	22	3.3		V-V	"	"	1	"	2	1	"	
Simchon	300	100	"	"		"	"	"	1	"	3	2	Shibaura	
Hukkyo	300	100	"	"		"	"	"	1	"	3		Hidachi	
Anak	900	300	"	"		"	"	"	1	"	3		Shibaura	
Hwangju	900	300	"	"		"	"	"	1	"	3		Fuji	
Sinhwanpo	516	150	"	"		V-V	"	"	1	"	4		Mitsubishi	
Matari	1200	200	"	"		"	"	"	1	"	6	1	Shibaura	
Samchon	86	50	"	"		V-V	"	"	1	"	3		Hidachi	
Supung Power Plant	400000	100000	156	225		"-Y	"	Water Cooling	3	50 60	4	1	Shibaura	
Supung	180000	10000	"	66		"	"	"	3	60	3		"	
"	6000	1500	"	3.3		"	Indoor	Self Cooling	1	"	3	1	"	
"	3100	100	"	"		"	"	"	1	"	3	1	"	
"	3600	600	3.3	22		"	"	"	3	"	4	2	"	
Hochon-gang (No. 1)	160000	80000	10	270		"-Y	Outdoor	Water Cooling	3	"	2		"	Power Plant
" (No. 2)	80000	40000	"	"		"	"	"	3	"	2		"	"
" (No. 3)	40000	40000	"	100 220		"	"	"	3	"	1		"2	"
" (No. 3)	74000	37000	"	"		"	"	"	3	"	2		"	"
" (No. 4)	80000	40000	"	110		"	"	"	3	"	2		"	"
" (No. 4)	7000	3000	"	66		"	"	Self Cooling	3	"	3		Hidachi	"



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Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor or Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common Use	Spare		
Puchōn-gang (No. 1)	144000	36000	11	110		Δ-Y	Outdoor	Water Cooling	3	60	4	1	Shibaura	Power Plant
" (No. 2)	46000	23000	"	"		"	"	"	3	"	2	1	Fuji	"
" (No. 3)	26664	26640	"	66		"	"	Self Cooling	3	"	4		"	"
" (No. 4)	12999	4333	"	110		"	"	Water Cooling	1	"	3	1	Shibaura	"
Yonghūng-gang Power Plant	750	250	3.3	22		Δ-Δ	"	Self Cooling	1	"	30	1	"	
Changjin-gang (No. 1)	160000	40000	11	110		Δ-Y	"	"	3	"	4	1	"	
" (No. 2)	240000	60000	11	154		"	"	Outdoor Cooling	3	"	4		"	
" (No. 3)	46500	15500	11	110		"	"	"	3	"	3		"	
" (No. 4)	54000	18000	11	110		"	"	"	3	"	4		"	
" (No. 4)	9000	8000	66	154		"	"	"	"	"	3	1	"	
" (No. 2)	136000	45000	11	110		"	"	"	3	"	3		"	
Hwachōn	60000	30000	10	154	16	Δ-Y-Δ	"	Self Cooling	3	"	2		Hidachi	
Chungdaeri (No. 1)	4125	1375	66	66		Δ-Δ	"	"	1	"	3		Shibaura	
" (No. 2)	4800	1600	66	66		"	"	"	1	"	3	1	Hidachi	
Haengchōlli	4125	1375	"	"		"	"	"	1	"	3	1	Shibaura	
Sinilli	3300	1100	"	"		"	"	"	1	"	3	1	Hidachi	
Songmok	600	200	22	3.3		"	"	"	1	"	3	1	Osaka	
Talchōn	86	50	"	"		V-V	"	"	1	"	2	1	Hidachi	
Sugyo	173	100	"	"		"	"	"	1	"	2	1	"	
Sinchōn	1200	400	"	"		Δ-Δ	"	"	1	"	3		Fuji	
"	3460	2000	"	"		V-V	"	"	1	"	2		Mitsubishi	
Wandong	600	200	"	"		Δ-Δ	"	"	1	"	3	1	Osaka	
Suktal	300	100	"	"		"	"	"	1	"	3		Hidachi	
Sinmak	600	200	"	"		"	2	"	1	"	3		Osaka	
Sōhūng	600	200	"	"		"	"	"	1	"	3		Shibaura	
Singye	173	100	"	"		V-V	"	"	1	"	2		Nishijima Shibaura	
Pangyo	300	100	"	"		Δ-Δ	"	"	1	"	3		Shibaura	
Chisōkō	300	100	"	"		"	"	"	1	"	3		Osaka	
Pōpchōn	300	100	"	"		"	"	"	1	"	3		Nishijima	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor or	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common Use	Spare		
Kimgyo	300	100	22	3.3			Outdoor	Self Cooling	1	60	3		Hidachi	
Hanpb	86	50	"	"		V-V	"	"	1	"	2		"	
Pyongsan	50	50	"	"		-	"	"	1	"	1		"	
Mulgae	30	30	"	"		-	"	"	1	"	1		Osaka	
Chongsu	52	30	"	"		V-V	"	"	1	"	2		Hidachi	
Unbong	50	50	"	"		-	"	"	1	"	1		"	
Yohyon	688	200	"	"		V-V	"	"	1	"	"	2	"	Mine
Yultong	860	500	"	"		"	"	"	1	"	2	2	Shibaura	"
Yongdangpb	6000	1000	66	3.3			"	"	1	"	6		Hidachi	Cement
Haeju Refinery	1290	750	"	"		V-V	"	"	1	"	2	1	Osaka	"
Madong Cement	3000	100	"	"			"	"	1	"	3		Shibaura	"
Sariwon Coal Mine	1500	500	"	"		"	"	"	1	"	3	1	Hidachi	Coal
Kijong	150	50	22	"		"	"	"	1	"	3		Mitsubishi	Mine
Nagyon	600	200	"	"		"	"	"	1	"	3	1	Hidachi	"
Hwanghae Refinery	12000	4000	66	"		"	"	"	1	"	3	1	Shibaura	Refinery
Sindok Mine	1500	500	"	"		"	"	"	1	"	3		"	Mine
Uilyul	600	200	22	"		"	"	"	1	"	3		"	
Tongch'angpb	600	100	"	"		"	"	"	1	"	6		Shibaura Nishijima	
Pyongyang	4500	1500	154	66	11	Y-Y-Δ	"	Water Cooling	1	"	3	1	Shibaura	
"	4500	1500	"	"	"	"	"	Self Cooling	1	"	3		"	
"	2100	700	66	3.3		Δ-Δ	"	"	21	"	3	1	"	
"	1500	500	22	"		"	"	"	1	"	3	1	"	
Chochon	20000	100000	11	66		Y-Y	"	Wind Cooling	3	"	2		"	
"	2250	750	66	22		Δ-Δ	"	Self Cooling	1	"	3	1	"	
"	866	500	"	3.3		V-V	"	"	1	"	2		"	
Unsan	30000	15000	154	66		Y-Δ	"	"	3	"	2		"	
"	1200	400	66	3.3		Δ-Δ	"	"	1	"	3	1	"	
Nampb	10000	10000	220	66		Y-Y	"	Wind Cooling	3	"	1		"	
"	412	250	66	33		V-V	"	Self Cooling	2	"	2	2	Osaka	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common use	Spare		
Tasati	200000	100000	220	66		Y-Y	Outdoor	Wind Cooling	3	60	1	1	Shibaura	
Kwanpyŏng	4000	4000	66	22		Δ-Δ	"	Self Cooling	1	"	1		Shibaura	
Sokt'ang Spa	4000	4000	"	"		"	"	"	1	"	1		Hidachi	
Haeso	346	200	22	3.3		V-V	"	"	1	"	2			
"	450	150	"	"		Δ-Δ	"	"	1	"	3	1		
Chŏngsan	600	200	"	"		"	"	"	1	"	3			
Yŏnho	432	250	"	"		V-V	"	"	1	"	2			
"	341	200	"	"		"	"	"	1	"	2			
Chŏlsan	600	200	"	"		Δ-Δ	"	"	1	"	3			
Pugŏm	300	100	"	"		"	"	"	1	"	3			
Paengnyang	900	300	66	22		V-V	"	"	1	"	2	1		
Pungnyul	512	300	"	"		"	"	"	1	"	2	1		
Chungsan	300	100	"	"		Δ-Δ	"	"	1	"	3			
Sŏchŏn	520	300	"	"		V-V	"	"	1	"	2			
Kalma (No.2)	5000	2500	"	"		Δ-Δ	"	"	3	"	2		Hidachi	
"	500	500	22	3.3		"	"	"	"	"	1		Osaka	
Taegang	150	50	66	"		"	"	"	1	"	3		"	
Ullim	600	200	22	"		"	"	"	1	"	3		Hidachi	
Munpyŏng	150	50	"	"		"	"	"	1	"	3		Hidachi Shibaura	
Munpyŏng Refinery	1500	250	"	"		"	"	"	1	"	6		Hidachi	Refinery
Munpyŏng Light Metal	1800	600	"	"		"	"	"	1	"	3	1	Fuji	Light Metal
Sangdong	3500	1000	"	"		V-V	"	"	1	"	4		Shibaura Hidachi	
Kalma	3000	1000	"	"		Δ-Δ	"	"	"	"	3		Hidachi	
Sŏsŏngni	600	200	"	"		"	"	"	1	"	3		Shibaura Hidachi	
Paehwa	100	200	"	"		"	"	"	1	"	3		Hidachi	
Iryŏng	1500	500	22	3.3		"	"	"	1	"	3		"	
"	4500	1500	66	22		"	"	"	1	"	3	1	Shibaura	
"	2700	300	22	3.3		"	"	"	1	"	9	1	Hidachi	
Hŏngnam	100000	50000	110	11		Y-Δ	Water	Water Cooling	1	"	6	1	Shibaura	Chemical factory

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor or Indoor	Cooling Method	Phase	Frequency	Number			Remarks
			1st	2nd	3rd						Common use	Spare	Maker	
Pongung	102000	34000	110	11		Y-Δ	Outdoor	Water Cooling	3	60	4		Shibaura	Chemical Factory
"	20000	20000	"	66		"	"	"	3	"	1		"	"
"	5000	5000	"	"		"	"	"	"	"	1		"	"
Hungnam	160000	50000	220	11		"	"	"	"	"	2		"	"
Hagal	900	300	66	3.3		-	"	Self cooling	1	"	3		"	
Chiktong	1200	200	"	"		"	"	"	"	"	6		Mitsubishi	
Changjin-gang (No. 4)	9000	3000	110	34.7		Δ-Y	"	Water Cooling	1	"	3		W.H.	
Pungsan	900	300	22	3.3		Δ-Δ	Indoor	Self Cooling	1	"	3		Mitsubishi	
Chŏnbulsan	150	50	22	3.3		"	Outdoor	"	1	"	3		Osaka	
Puchŏnggang (No. 4)	300	100	11	"		"	"	"	1	"	3		"	
Taejo	150	50	22	"		"	"	"	1	"	3		"	
Unbong	2580	2500	66	22		"	"	"	3	"	1		Hidachi	
"	600	200	22	3.3		"	"	"	1	"	3		"	
Inhŭng	3000	1000	66	22		"	"	"	1	"	3		Shibaura	
"	600	200	22	3.3		"	"	"	1	"	3		"	
"	150	50	"	"		"	"	"	"	"	3		"	
Wanŭsang	100	200	"	"		"	"	"	"	"	3		Hidachi	
Munsan	129	75	"	"		V-V	"	"	"	"	2		Meiden	
Wŏnpŏ	172	100	"	"		"	"	"	"	"	2		Hidachi	
Chinpyŏng	600	200	"	"		Δ-Δ	"	"	"	"	3		Shibaura	
Yŏnghŭng	1050	350	"	"		"	"	"	"	"	3		Hidachi	
Yongban	100	50	"	"		"	"	"	3	"	2		Osaka	
Yŏnghŭng Gold Mine	36	50	"	"		V-V	"	"	1	"	2		Nishijima	
Sanggyŏngtun	300	100	22	3.3		Δ-Δ	"	"	1	"	3		Hidachi	
Kowŏn Coal Mine (No. 1)	900	300	"	"		"	"	"	1	"	3		Osaka	Coal Mine
" (No. 2)	900	300	"	"		"	"	"	1	"	3		"	"
Sangok	750	250	"	"		"	"	"	1	"	3		"	"
Kowŏn	520	300	"	"		V-V	"	"	"	"	2		Hidachi	
Wŏnsan	8660	2500	66	22		"	"	"	"	"	4		Shibaura	
2 "	3400	1000	22	3.3		Δ-Δ	"	"	"	"	3		Hidachi	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number			Remarks
			1st	2nd	3rd						Common use	Spare	Maker	
Parwiri	600	200	22	3.3		Δ-Δ	Outdoor	Self Cooling	1	60	3		Hidachi	
Sinpung Coal Mine	900	300	"	"		"	"	"	1	"	3		"	Coal Mine
Munchon Coal Mine	100	200	"	"		"	"	"	1	"	3		Shibaura	"
Munchon	300	100	"	"		"	"	"	1	"	3		Hidachi	
Puksong	600	200	"	"		"	"	"	1	"	3		"	"
Chongnaeri	9000	1500	66	22	3.3	"	"	"	1	"	6		Hidachi Osaka	
Chinhung	900	300	22	3.3		"	"	"	"	"	3		Hidachi	
Sogwangsa	600	200	"	"		"	"	"	1	"	3	1	"	
Hamhung (No.1)	6000	6000	66	"		Y-Δ	"	"	3	"	1		Mitsubishi	
"	1730	6000	"	22		V-V	"	"	1	"	2		Shibaura	
" (No. 2)	4500	1500	"	3.3		Δ-Δ	"	"	1	"	3		Hidachi	
"	2250	750	"	"		"	"	"	1	"	3		Meiden	
Samho	90	30	22	3.3		"	"	"	1	"	3		Osaka	
Hongwon	2100	1500	11	22		V-V	"	"	1	"	2		Hidachi	
"	600	200	22	3.3		Δ-Δ	"	"	1	"	3		Shibaura	
Unpo	600	200	"	"		"	"	"	1	"	3		Mitsubishi	
Samcha	520	300	"	"		V-V	"	"	1	"	2		Shibaura	
Yonpo	600	200	"	"		Δ-Δ	"	"	1	"	3		Osaka	
Chongpyong	900	300	"	"		"	"	"	1	"	3		Mitsubishi	
Sondok	600	200	"	"		"	"	"	1	"	3		Meiden	
"	450	150	"	"		"	"	"	1	"	3		Osaka	
Pupyong	35	50 20	"	"		V-V	"	"	1	"	2		Shibaura Osaka	
Sinsang	300	100	22	3.3		Δ-Δ	"	"	1	"	3		Osaka	
Sokku	600	200	"	"		"	"	"	1	"	3		Shibaura	
Yanghwa	344	200	"	"		V-V	"	"	1	"	2		Hidachi	
Sinpo	692	400	"	"		"	Indoor	"	"	"	2	1	Fuji	
Toksong	344	200	"	"		"	Outdoor	"	"	"	2		Hidachi	
Nahung	3000	1000	66	22		Δ-Δ	"	"	3	"	3			
"	1730	1000	22	3.3		"	"	"	3	"	2			
" (No.2)	4500	1500	66	"		"	"	"	1	"	3		Shibaura	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number			Remarks
			1st	2nd	3rd						Common use	Spare	Maker	
Sinpukchong	450	150	22	3.3		-	Outdoor	Self Cooling	1	60	3		Hidachi	
"	300	100	"	"		"	"	"	1	"	3		Hidachi	
Pukchong	700	300	"	"		"	"	"	1	"	3		Shibaura	
"	200	200	"	"		"	"	"	1	"	1		Hidachi	
Ilgon	1732	1000	66	22		V-V	"	"	1	"	2		Shibaura	
"	900	300	22	3.3		-	"	"	"	"	3		Hidachi	
Hyesan	1200	200	22	"		"	"	"	1	"	6		Shibaura	
Iwon Iron Mine	600	200	"	"		"	"	"	1	"	3		Hidachi	
"	900	300	"	"		"	"	"	1	"	3		"	
Talchon	900	300	66	"		"	"	"	1	"	3		"	
Puktu	900	300	22	"		"	"	"	1	"	3		"	
Pudong	600	200	"	"		"	"	"	1	"	3		Shibaura	
"	900	300	"	"		"	"	"	1	"	3		"	
"	150	90	"	"		"	"	"	1	"	3		Osaka	
Chonnam	600	200	"	"		"	"	"	1	"	3		Shibaura	
Omongni	2000	1000	66	22		"	"	"	3	"	2			
"	1500	500	"	"		"	"	"	1	"	3	1		
"	1000	1000	22	3.3		"	"	"	3	"	1			
"	150	50	"	"		"	"	"	1	"	3			
"	200	200	"	"		"	"	"	1	"		3		
Chongdok	4500	1500	66	22		"	"	"	1	"	3		Shibaura	
Waryong	1800	300	22	3.3		"	"	"	1	"	6		"	
Haksok	1200	200	"	"		"	"	"	1	"	6	1	"	
Yongam	1000	1000	"	"		"	"	"	5	"	1	1	Hidachi	
Talho	3000	1000	"	"		"	"	"	5	"	3		"	
Hangnam	600	200	"	"		"	"	"	5	"	3		Shibaura	
Haksang	600	200	"	"		"	"	"	1	"	3		"	
Obok	600	200	"	"		"	"	"	1	"	3		"	
Kilchu	1050	350	"	"		"	"	"	1	"	3	1	"	
Agan	600	200	"	"		"	"	"	1	"	3		"	
Changbaek	346	200	"	"		V-V	"	"	"	"	2		"	
Nodong	346	200	"	"		"	"	"	1	"	2		"	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor or	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common use	Spare		
Yangsa	300	100	22	3.3		-	Outdoor	Self Cooling	1	60	3		Shibaura	
Saengjang	150	50	60	"		"	"	"	"	"	3		"	
Chongjin (No.2)	20000	4000	66	22		Y-	"	"	3	"	5		Hidachi	
"	6000	6000	"	3.3		"	"	"	3	"	1		Mitsubishi	
"	1500	500	22	3.3		-	"	"	3	"		3	Hidachi	
Musan	1200	6000	66	3.3		Y-	"	"	3	"	2		Mitsubishi	
Chul	6000	2000	"	22		"	"	"	1	"	3	1	Osaka	
"	1000	1000	22	3.3		"	"	"	3	"	1	1	Hidachi	
Komusan	3000	1000	11	"		-	"	"	1	"	3	1	Osaka	
Sunam	3000	1000	22	"		"	"	"	3	"	3		Hidachi	
Tonghae	4000	2000	22	"		Y-	"	"	3	"	2		"	
Tomaktong	350	200	"	"		"	"	"	1	"	2		"	
Nanam	866	500	66	"		V-V	"	"	1	"	2		Osaka	
Kyongsong	500	500	"	"		-	"	"	3	"	1		"	
Saenggyong	500	500	"	"		"	"	"	3	"	1		Mitsubishi	
Yonghyon	500	500	"	"		"	"	"	3	"	1		Osaka	
Hoemun	500	500	"	"		"	"	"	3	"	1		Mitsubishi	
Odaejin	600	200	"	"		"	"	"	1	"	3		Hidachi	
Chunam	300	100	"	"		"	"	"	1	"	3		Osaka	
"	500	500	22	3.3		"	"	"	3	"	1		"	
Changdok	260	150	"	"		V-V	"	"	1	"	2		Osaka	
Myonggyong	225	75	"	"		-	"	"	1	"	3		"	
Myongnam	75	25	"	"		"	"	"	1	"	3		"	
Pubukkong	2400	800	24	"		Y-	"	"	1	"	3	1	Shibaura	
Yongan	750	750	66	"		"	"	"	3	"	1		Osaka	
Hoeryong	350	200	22	"		V-V	"	"	1	"	2	1	Shibaura	
"	1200	400	"	"		-	"	"	1	"	3		Mitsubishi	
Yongan	4000	2000	66	22		Y-	"	"	3	"	2		Shibaura	
"	300	100	22	3.3		-	"	"	3	"	3		Fuji	
Kungsim	1500	500	66	3.3		"	"	"	1	"	3		Shibaura	
Turim	500	500	22	3.3		"	"	"	3	"	1		Mitsubishi	
"	750	250	"	"		"	"	"	1	"	3		Hidachi	

Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common use	Spare		
Namyang	620	300	66	3.3		V-V	Outdoor	Self Cooling	1	60	2		Nishijima	
Yusŏn	1950	650	22	"		-	"	"	1	"	3		"	
Pungin	1800	600	66	3.3		"	"	"	1	"	3		Shibaura	
Sangsambong	300	100	22	"		"	"	"	1	"	3		Hidachi	
Chungdo	100	50	"	"		"	"	"	3	"	2		Osaka	
Soam	100	50	"	"		"	"	"	3	"	2		Osaka	
Tonggwan	150	60	"	"		"	"	"	3	"	3		"	
Hakpŏ	1300	750	66	"		V-V	"	"	1	"	2		Shibaura	
Chongsŏng	750	750	"	22		-	"	"	3	"	1		Osaka	
"	225	75	22	3.3		"	"	"	1	"	3		Fuji	
Hungyung	900	300	66	"		"	"	"	1	"	3		Shibaura	
Kilgonwŏn	3000	1000	"	"		"	"	"	1	"	3		Osaka	
Unggi	900	300	"	"		"	"	"	1	"	3		Shibaura	
Kwanghae	900	300	"	"		"	"	"	1	"	3		Osaka	
Pugŏ	300	300	22	"		"	"	"	3	"	1		Hidachi	
Chŏkchi	1000	500	"	"		"	"	"	3	"	2		Osaka	
Najin	1500	500	66	3.3		"	"	"	1	"	3		"	
Kumhwa	300	100	"	"		"	"	"	1	"	3		Shibaura	
Kumsŏng	2100	350	"	"		"	Indoor	"	"	"	6	2	"	
Yangjiri	2700	900	"	"		"	"	"	1	"	3	1	Mitsubishi	
"	3000	1000	"	22		"	Outdoor	"	"	"	3		Hidachi	
Changdo	3000	1000	"	"		"	"	"	"	"	3	1	Fuji	
Sinan	300	100	"	3.3		"	"	"	"	"	3		Mitsubishi	
Pyŏnggang	300	100	22	"		"	Indoor	"	"	"	3		Hidachi	
Changjŏn	600	300	"	"		"	"	"	"	"	3	1	"	
Kohŏ	600	200	"	"		"	Outdoor	"	"	"	3	1	Shibaura	
Haknang	1500	500	"	"		"	"	"	"	"	3	1	Hidachi	
Mundŏng	300	100	"	"		"	"	"	"	"	3		Shibaura	
Hwagye	87	50	"	"		V-V	Indoor	"	"	"	2		Hidachi	
Silli	300	100	"	"		"	Outdoor	"	"	"	3		"	
Yangsong	600	200	"	"		"	"	"	"	"	3	1	Shibaura	
Yŏnchŏn	1200	400	"	"		"	"	"	"	"	3	1	Hidachi	



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Name of Substations	Output KVA	Capacity KVA	Voltage			Connecting Method	Outdoor or Indoor	Cooling Method	Phase	Frequency	Number		Maker	Remarks
			1st	2nd	3rd						Common use	Spare		
Sabuk	150	50	66	3.3		Δ-Δ	Outdoor	Self Cooling	1	60	3		Hidachi	
Sokohb	600	200	22	"		"	"	"	1	"	3		Shibaura	
Yangyang	3000	1000	66	22	3.3	Δ-Y	"	"	"	"	3	1	Hidachi	
Sambang	4000	4000	"	"		Δ-Δ	"	"	3	"	1		Fuji	Electric Railroad
"	75	75	22	66		"	"	"	3	"	1		"	"
Pokkye	4000	4000	66	22		"	"	"	3	"	1		Shibaura	"
" (35 1/2 KV)	75	75	22	66		"	"	"	1	"	1		"	"
Munpyŏng	1500	15000	154	66		"	"	"	3	"	1		"	
Chŏngjin	100000	100000	120	"		Y-Y	"	"	3	"	1		"	
"	20000	20000	100	"		Y-Δ	"	"	3	"	1		"	
"	30000	15000	"	"		Y-Y	"	"	3	"	2		Mitsubishi	
Aoji	34500	34500	"	"		Y-Δ	"	"	3		1	1	Shibaura	
"	5000	5000	"	"		"	"	"	"		1		Fuji	
Kilchu	10000	3333	110	66		"			1		3	1	Mitsubishi	
Sinkilchu	40000	40000	110	11		"			3		1		Shibaura	
Yondupyŏng	900	300	66	33		Δ-Δ	"	"	1		3	2	Osaka	
Yusang	500	300	"	"		Y-Y			1		3	1	Osaka Nishijima	
Tanchŏn	300	100	"	"		Δ-Δ			1		3		Osaka	
Ip'a	1000	500	66	22		"	"	"	3	"	2	1	"	
Kŏjin	600	200	22	3.3		"	"	"	1	"	3			

## (1) Generation of Electric Power

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Power Plant	Power Station	Generating Capacity	Days	Hours	Average Power (KV)	Maximum Power (KV)	Average Maximum Power	Rate of Burden (percent)
Supung	5000	37,474,000 (KWH)	30	720 H	52,047	72,000	65,000	80.0
	6000	103,808,500	"	"	144,178	212,000	157,633	92.0
	Total	141,282,500	"	"	196,226	275,000	213,133	90.0
Power Station								
Changjin -gang	No. 1	54,864,400	"	"	76,200	121,400	94,813	80.0
	No. 2	37,558,600	"	"	52,165	85,200	67,580	70.6
	No. 3	14,505,400	"	"	20,563	34,600	26,803	78.6
	No. 4	12,944,000	"	"	17,978	28,000	23,800	75.3
	Total	120,172,400	"	"	160,906	203,500	95,633	85.5
Power Station								
Puchon	No. 1	43,891,600	"	"	609,597	78,000	68,766	89.0
	No. 2	12,815,000	"	"	179,375	23,000	20,600	90.0
	No. 3	4,401,120	"	"	61,127	10,800	81,147	75.3
	No. 4	2,412,500	"	"	33,507	6,100	45,337	73.0
	Total	63,619,620	"	"	883,606	170,900	120,064	82.0
Power Station								
Hochon-gang	No. 1	53,627,000	"	"	74,483	106,000	85,433	82.0
	No. 2	25,469,000	"	"	35,375	50,000	42,833	72.0
	No. 3	19,182,000	"	"	26,642	39,000	32,349	82.7
	No. 4	21,834,000	"	719H-30	30,328	40,000	34,300	88.0
	Total	120,112,000	"	720	166,822	-	-	-
Power Station								
Puryong	No. 1	4,502,520	"	719H-55	6,249	10,320	7,037	89.0
	No. 2	485,376	"	705H-30	674	1,392	1,016	66.0
	Total	4,987,896	"	719H-55	6,923	-	-	-
	TOTAL	125,099,897	"	720	173,750	-	-	-
Power Station								
Kangwon	No. 1	40,560	9	116H-20	56	516	108	16.0
	No. 2	2,049,160	30	720	2,846	6,284	39	71.0

Power Plant	Power Station	Generating Capacity (KWH)	Days	Hours	Average Power (KW)	Maximum Power (KW)	Average Maximum Power	Rate of Burden (percent)
Kangwŏn	No.1	40,560	9	116H-20	56	516	108	16.0
	No.2	2,049,160	30	720	2,846	6,284	39	71.0
	No.3	376,800	17	376H-10	523	3,100	1,007	29.0
	No.4	347,040	15	326	482	2,448	773	31.0
	Total	2,813,560	30	720	2,908	11,796	5,624	70.0
Hwachŏn	Hwachŏn Power Station	4,291,560	30	678H-36	5,361	13,200	8,560	76.0
	Total	7,105,120	30	-	9,869	-	-	-
Grand	5000	27,474,000	30	720H	52,470	72,000	64,100	
Total	6000	419,805,536	30	"	583,636			
Grand Total		457,279,536	"	"	636,116			

## (2) Supply of Power

## A. Transformer Substations

Name of Substation	Volume of Power Supplied	Days	Hours	Average Power (KW)	Maximum Power (KW)	Average Maximum Power	Rate of Burden (percent)
Pyŏngyang No.1	31,603,644	30	720H	43,908	67,676	-	-
Pyŏngyang No.2	10,312,732	"	"	14,303	27,053	-	-
Nampb	16,064,000	"	"	22,311	28,000	-	-
Tasato	8,922,000	"	"	12,392	21,000	14,450	94
Unsan	10,226,100	"	719H-18	14,254	21,500	18,500	96
N/W. Total	77,175,476	"	720H	107,188	-	-	-
Hŭngnam	98,759,297	"	720	137,664	206,000	144,430	-
East Hŭngnam	52,937,000	"	"	73,524	108,000	79,907	-
Yonghŭng	46,627,000	"	"	64,759	91,000	74,270	-
Pongung	33,306,248	"	"	46,258	69,500	56,980	-
Yongsŏng	6,816,776	"	"	9,468	20,000	13,903	-
Munpyŏng	4,099,500	"	211H-20	5,694	9,150	7,577	-
Pongung (66 KV)	4,196,500	"	"	5,828	10,000	8,327	-
Chŏngjin	12,109,920	"	720H	16,819	29,900	21,273	-
Aoji	7,767,900	"	"	10,789	15,139	13,114	-
Kilchu	2,359,000	"	"	3,276	6,000	4,713	-
Sinkilchu	3,057,500	"	718H-36	4,246	8,250	5,891	-
Sŏngjin	12,183,960	"	720	16,922	33,880	19,849	-
NE Total	284,219,490	"	"	334,748			
Grand Total	361,394,960	"	"	501,936			

## B. Special Supply

User	Volume of Power Supplied	Days	Hours	Average Power	Maximum Power	Average Maxi- mum Power
Hungnam Factory	238,445,321	30	720H	336,173	369,500	339,090
Chongjin Steel Mill	1,293,200	"	719H-54	1,796	4,600	2,613
Songjin "	12,183,960	"q	720H	16,922	37,886	19,849
Kilchu Paper Mill	3,057,500	"	718H-36	4,246	8,250	5,891
Puryong Metallurgy	5,386,264	"	717H-33	7,481	-	-
Aoji Factory	7,063,200	"	719H-37	3,810	14,160	11,793
Kangson Steel Mill	5,136,000	"	717H-54	7,133	14,000	
Nampo Light Metal	365,000	"	720H	517	1,000	
Nampo Refinery	4,462,123	"	717H-23	6,197	1,108	
Pukchung Machine	212,900	"	720H	296	100	379
Sunchon Chemistry	632,741	"	"			
Chongsu "	5,442,340	"	"	7,559	2,200	14,307
Hwanghae Iron Mill						

## C. Interior of Power Plants

Power Department	Power Station	Volume of Power Supplied	Days	Hours	Average Power	Maximum Power	Rate of Burden
Supung	Supung	331,490	30	720H	410		
Changjingang	Power S <sup>n</sup>		"	718H-42	94	151	
	No.1	18,128	"	720H	131	192	
	No.2	94,157	"	"	31	53	
	No.3	21,427	"	"	39	70	
	No.4	28,290	"	"	294		
	Total	212,002					
	Power Station		"	"		142	
	No.1	10,222	"	"		63	
Puchongang	No.2	45,619	"	"		23	
	No.3	16,398	"	"		21	
	No.4	14,973	"	"		249	
	Total	179,212					
	Power Station		"	719H-56	94	130	101
	No.1	65,000	"	720	40	58	60
Hochongang	No.2	33,420	"	"	54	100	57
	No.3	37,720	"	719H-55	43	90	53
	No.4	31,020	"	720H-30	36	91	54
Puryong	No.1	25,564	"	716H-30	17		
"	No.2	12,193	"	720	289		
	Total	208,918					

Power Department	Power Station	Volume of Power Supplied	Days	Hours	Average Power	Maximum Power	Rate of Burden
Kangwŏn	Hwachŏn	42,624					
	Kŭmgangsan	5,593					
	Total	48,217					
Total	Grand Total	979,888					

## D. Home Use of Power Plants (Internal Power)

Power Department	Power Station	Volume of Power Supplied	Days	Hours	Average Power	Maximum Power	A.M.P.	R/B
Power Station								
Changjin-gang	No. 1	10,176.47	30		1413			
	No. 2	11,172.33	"		163			
	No. 3	49.29	"	720	7			
	No. 4	64.80	"	"	9			
	Total	11,462.89	"	"	1592			

## E. Local Burden of Each Power Plant

Power Department	Power Station	Volume of Power Supplied	Days	Hours	Average Power	Maximum Power	A.M.P.	R/B
Supŭng	Supŭng	3,966,865	30	720H	5533			
Power Station								
Changjin-Gang	No. 1	14,465,723	"	719H-46	2037			
	No. 2	2,450	"	720	3			
	No. 3	9,151	"	"	13			
	No. 4	1,618,795	"	"	2248			
	Total	3,097,119	"	"	4301			
Power Station								
Puchŏn-gang	No. 1	109,768	30	720H				
	No. 2	16,384	"	719H-52				
	No. 3	17,960	"	720				
	No. 4	276,810	"	"				
	Total	420,922	"	"				

## (3) Electric Transmission Lines

Name of Transmission Line	Cap. of Power Trans.	Days	Hours	Avg. Po. Transmitted	Maximum Power	Avg. Max. Power	Rate of Burden
Pyŏngyang 2nd Line	96,254,100	30	720H	133,686			
" Connecting Line	54,939,000	"	"	76,304			
" 1st Line	18,598,694	"	"	25,832			
(Transmitting 1-2)							
" 1st Line							
(Receiving 1-2)	8,596,300	"	"	11,939			
Hamgyŏng-bukto No. 1 Line	10,930,000	"	"	15,181	47,000	23,066	
Hamgyŏng-bukto No. 2 Line	17,050,000	"	"	23,687	51,000	33,766	
Hamgyŏng-namdo No. 1 Line	8,620,000	"	"	11,972	34,000	20,833	
Hamgyŏng-namdo No. 2 Line	8,560,000	"	"	11,889	34,000	23,733	
Tonghŭng South L.	51,643,000	"	709H-5	74,728	99,000		
Taedong Line	29,637,930		720	41,164	57,780	52,644	
Anshan Line	6,562,070	"	"	9,114	18,722	10,389	
Chŏngjin Line	11,061,600	"	655H-30	15,363	29,900		

(4) Volume of Power Generated and Supplied;  
Comparison of Plan and Results

<u>Kind</u>	<u>Volume of Power</u>	<u>Comparison of Plan and Results</u>
Supply		
Total Volume Generated	457,279,536	Plan: 474,642,000
NE 1st Total	354,219,490	Result: 467,279,536
NW 1st Total	77,157,476	Ratio: 96.3 percent
Volume of Power Inside Plants	977,888	1948 - 438,874,676
		1949 - 407,279,536
Home Use of Plants	3,564,909	Ratio: 104.1 percent
Local Burden of Plants	20,418,473	
Transmission to China	31,180,905	
Total	422,539,141	
Percentage of Loss	100 x $\frac{457,279,536 - 422,539,141}{467,284,536}$	7.5 percent

## (5) Water Level

Place		Water Level	1m 3/5mc	m 3/5cc	Temperature		Precipitation
			Flooding Water	Water Harnessed	Highest	Lowest	
Suplung		11,622	389.53	30,917	34	11	98.6
Changjin-gang	Dam No.1	7,180	03.31		27.5	-1	54.7
	Dam No.2	3,020	37		26	-2	59.9
Oychöngang	Dam No.1	7,555	5.52	10.84	29	-1	
	Dam No.2	2,785	1.50	10.84	26	-1.5	
	Dam No.3	0.690	1.94	10.59	26	0	
Höchöngang	Yonduppyöng	3.76	11.76		29	13	68.7
	Hwangsupyöng						
	öng	3.75	2.19		29	16	52.9
	Naejungni	7.46	1.22		29	12	73.5
	Sachöpyöng	6.27	4.16	20.14	31	17	104.6
	Puryöng	0.950	2.13	1,533			
Kangwön	Hwachön	175.18	68.4	15.9	31	17	55.9
	Kümgangsan	12,718	50.08	1.88	18	10	330.6

## (6) Electric Accidents at Power Plants

Kind Department	TC Oa ts ae ls	H i n t e r n a t i o n a l	S t a t i s t i c s	No. HS No. HS No.	Electric Shock		W a t e r	G e n e r a t o r	T r a n s f o r m e r	S w i t c h	O t h e r	T o t a l	W a t e r M i l l	G e n e r a t o r	T r a n s f o r m e r	S w i t c h	O t h e r	T o t a l
					Employees	Public												
Suplung Power	1		1									1	1					
Changjingang Power	3		2	1								2	2					
Puchöngang Power	1		1									1	1					
Höchöngang Power	4		2	2			2						2					
Kangwön Power	1			1														
Total	10		6	4			2					4	6					

## Damages to Power Plants

<u>Province</u>	<u>Power Plant</u>	<u>Machines Damaged</u>	<u>Capacity</u>	<u>Quantity</u>	<u>Outline of Damages</u>
Hamgyŏng namdo	Puchŏngang No.1 Power Station	Generator	KVA 36,000	2	On one generator, 56 armature coils cut & Burnt due to breakdown of slators; On another generator, the casing destroyed. Heavily crippled & outdoor equipments destroyed.
"	"	Transformer	11/100 KVA 36,000	1	
"	"	Iron Pipe			No.3 Iron Pipe ruined & No.4,5 Iron Pipes burst.
"	Changjingang No.1 Power Station	Transformer	11/110 KVA 40,000	1	Two bushes (110KV), damaged but repairable
"	"	Arc Suppressing Reactor		1	

No.1 Damages to Important Transformers Above 66KV (as of September 1950)

<u>Province</u>	<u>Name of Substation</u>	<u>Machines Damaged</u>	<u>Capacity</u>	<u>Quantity</u>	<u>Outline of Damages</u>
Hamgyŏng-bukto	Aoji	Transformer	110/11 KVA 34,500	1	Outdoor structure & bush all damaged; tank partly burst.
"	Chŏngjin No.2	"	66/22 4,000 "	2	One, damaged in bush & radiator; another, bombed out.
"	Chŏngjin No.1	"	220/66 100,000 "	1	Bushes & coolers totally destroyed.
"	"	"	110/66 15,000 "	2	One, burnt out; another, lost insulator due to bursting of tank.
"	"	"	110/66 20,000 "	1	Internal parts burnt in bombing.
"	Sŏngjin	"	110/22 10,000 "	3	Seriously burnt; outdoor equipment, Switchboard & all destroyed.
"	Kilchu Paper Mill	"	66/33 6,000 "	1	Destroyed with the factory.
"	Kilchu	"	110/66 3,333 "	2	Bush & tank partly crippled
"	Hoeryŏng	"	66/33 750 "	3	Oil leaked through bullet holes on tanks in bombing
"	Omong	"	66/22 1,000 "	2	Bushes & radiators all destroyed
"	"	"	22/33 1,000	1	" "



<u>Province</u>	<u>Name of Substation</u>	<u>Machines damaged</u>	<u>Capacity</u>	<u>Quantity</u>	<u>Outline of Damages</u>
Hamgyŏng-namdo	Hŭngnam	Transformer	110/11 KVA 50,000	7	Irreparably crippled, outdoor equipment, switchboards & building burnt.
"	"	Rotary Converter	3,500 "	45	30 percent thoroughly crippled; 7 converters repairable; other equipment destroyed.
"	Pongung	Transformer	110/11 34,500 "	2	Due to breakdown of pushings & explosion of transformer tanks, insulator oil burnt & washed away.
"	"	"	110/66 5,000 "	1	"
"	Yonghŭng	"	350/11 60,000 "	2	Due to machine-gun fire, bush damaged, tanks partly holed, and oil washed away, but repairable
"	Ŭnbong (Elec. R/R)	"	66/22 2,500 "	1	Exploded and burnt with the substation.
"	Kwanpyŏng	"	66/22 4,000 "	2	One damaged in addiator and bush during removal, but repairable; one, partly damaged through machine gunning.
"	Hongwŏn	"	66/33 750 "	3	Partly damaged through machinegunning but repairable.
Kangwŏn	Wŏnsan	"	66/22 2,500 "	2	One, inwardly burnt; one slightly damaged (repairable)
"	Kŭmhwa	"	66/33 300 "	3	All burnt & destroyed
"	Kalma	"	66/22 2,500 "	2	"
"	Yangjiri	"	66/22 900 "	3	One, inwardly burnt up; two, partly destroyed (repairable)
Pyŏngan-namdo	Pyŏngyang No.1	"	110/66/11 15,000 "	6	Three self-cooling transformers burnt; one water cooling transformers destroyed & two others externally damaged.
"	"	Arc Suppressing Reactor	19,000 "	1	Pushing (154KV) damaged; tank pierced by bullets; insulator oil washed away (repairable)

Province	Name of Substation	Machines damaged	Capacity	Quantity	Outline of Damages
Pyongan-namdo	Pyongyang No. 1	Phase modifier	15,000KVA	1	Motor damaged; coil cut by bullets, phase-regulator coil partly destroyed.
"	"	Transformer	66/33 750 "	1	Burnt up (Substation all destroyed)
"	" No.2	"	220/66 100,000 "	2	One bush damaged, tank pierced, & oil washed away one externally damaged.
"	"	Series Transformer	100,000 "	2	One, exploded and burnt; one, tank pierced & oil washed away.
"	"	Voltage Regulator	100,000 "	2	"
"	Nampo	Transformer	22/66 100,000 "	1	Internally burnt up; switchboard & outdoor equipment destroyed (irreparable)
"	"	"	100,000 "	1	"
"	"	Voltage Regulator	100,000 "	1	"
"	Songyori	Transformer	66/11 12,500 "	1	Radiator destroyed & oil washed away.
"	Inhungni	"	66/33 10,000 "	1	Oil tank exploded
Pyongan-namdo	Songchon	"	66/22/3.3 350 "	2	Exploded and burnt <del>XXXX</del> <del>XXXXXXXXXXXXXXXXXXXX</del>
"	Sunchon	"	66/22 750 "	2	Bush totally damaged; & tank & radiator partly damaged.
"	Sukchon	"	66/22 1,500 "	4	Exploded and burnt
Pyongan-bukto	Sakchu	"	66/22 750 "	4	All destroyed & burnt (irreparable)
"	Maengjungni	"	66/22/3.3 1,000 "	4	"
Hwanghae-do	Chaeryongdo	"	66/22 1,000 "	2	" Outdoor switchboard partly destroyed
"	"	"	66/22 750 "	2	"
"	Sariwon	"	66/22 1,500 "	2	One, burnt up; One partly damaged and oil washed away.
"	"	"	66/3.3 750 "	1	Exploded and burnt.
Hwanghae-do	Haeju	Transformer	66/22/3.3 1,200KVA	4	Two, completely damaged; two slightly damaged (reparable)
"	Namchon	"	66/22/3.3 750 "	4	Exploded and burnt
"	Kyeyong	"	66/22 1,500 "	4	"

## Power Distributing Lines (as of June 1949)

Section	Length of Electric Wire (Km)			Length of Telephone Wire (Km)			Number of Supports			Number of Transformers	
	High Voltage	Low Voltage	Total	High Voltage	Low Voltage	Total	Power	Iron Column	Wooden Total	Number	KVA
Höchöngang	62,258	3,946	66,204	169,817	8,172	177,989		1210	1210		
Changjingang	26,593	4,713	3,606	77,031	7,865	84,996		567	567	150	2362
Puchöngang	16,526	2,921	19,447					302	302	81	1771
West Transmission											
Pyöngyang	4,030	3,570	7,600	12,090	7,140	19,230		143	143	16	265
Power Distributing Center	590,100	324,300	915,400	162,340	9,761	2519500	2	13,885	13,887	4401	41938
Pyongan-namdo											
Power Distributing Center	418,791	530,129	1448920	3024953	1007509	4033412	6	26,384	26,390	2814	18582
Haeju Power Distributing Center	696800	525100	1221960	1911200	1152900	3064100	2	22001	22003	4191	27773
Sinöiju Power Distributing Center	545267	377802	923069	1578042	839390	2412432	17	16745	16762	24592	24035
Hamhüng Power Distributing Center	554710	455700	1010400	6634400	955700	2623100	4	12499	14003	2045	21366
Wönsan Power Distributing Center	967211	852466	1819677	2156139	1904972	4561100		32143	32143	3799	39705
Chöngjin Power Distributing Center	1108500	771210	1879710	2993700	1648300	4642000		26954	26954	2983	32884
Nampo Power Distributing Center	380600	228300	678900	701200	456600	1157800		10505	10505	1582	13290
Kanggye Power Distributing Center	325671	188116	513787	742957	362921	1145878		8196	8196	962	9179
Tanchöu Power Distributing Center	891684	741134	1632858	2241221	1455716	3696937		29879	29879	2264	20988
Total	7060035	5009447	12069478	19401244	10816285	30217527	31	203113	203113	27746	255218

Damages to Electrical Equipment at Pyŏngyang

<u>Kind</u>	<u>Length Location (M)</u>	<u>Extension Length (M)</u>	<u>Number of Supports</u>	<u>Transformer on poles</u>	<u>U.S. on poles</u>	<u>Re- mark</u>
Equipment as of 25 June 1950	209,738	1,151,041	5,473	2,733	326	
Damages as of 20 October 1950	14,856	116,250	193	350	60	
Equipment as of 18 November 1950	194,882	1,034,791	5,280	2,383	266	

Survey in November 1950  
by the Pyŏngyang City Power Distributing Center.

6-

No. 1 Damage to Transformer Substations

<u>Name of Substation</u>	<u>Location</u>	<u>Capacity KVA</u>	<u>Tools and Machines</u>	<u>Standard Size</u>	<u>Quantity</u>	<u>Outline of Damage</u>	<u>Extent of Loss</u>	<u>Repair</u>
Pyongyang	Munsuri	93,750	Transformer	154/66/11KV 15,000KVA Water cooling	1	Completely ruined by direct bombing	Big damage	Impossible
"	"	"	"	" Self Cooling	2	Burnt	Half-damage	Possible
"	"	"	"	" water "	2	Oil leaked	small-damage	"
"	"	"	"	" self "	1	"	"	"
"	"	"	"	66/33KV 750KVA water cooling	2	Scorched in bombing	Half-damage	"
"	"	"	"	11/33KV 500 " Self cooling	1	Bush damaged	Small-damage	"
"	"	"	O.C.B.	154 KV 66KVA	2	Bullet Hits on Bush and Oiltank	"	"
"	"	"	"	P. coil	1	Burnt	"	"
"	"	"	P. coil	66KV 4800KVA	1	"	"	"
"	"	"	D.S.	66KV	5	Bombing	Big damage	Impossible
"	"	"	P.T.	"	2	"	Half-damage	Possible
"	"	"	R.T.	"	2	"	Big-damage	Impossible
"	"	"	C.T.	"	12	"	"	"
"	"	"	O.C.B.	"	5	Bush Damaged	Half-damage	Possible
"	"	"	Lightening Arrester	"	1	"	Big-damage	Impossible

<u>Name of Substation</u>	<u>Location</u>	<u>Capacity</u>	<u>Tools and Machines</u>	<u>Standard Size</u>	<u>Quantity</u>	<u>Outline of Damage</u>	<u>Extent of Loss</u>	<u>Repair</u>
Pyongyang	Munsuri		P. Coil	154KV 17000KVA	1	Bush damaged	small-damaged	Possible
"	"		Iron Frame	54KV 66KV	10	Bombing	Big-damaged	Impossible
"	"		Oil Phase Machine	16000KVA	1	Motor and Dynamo damaged	Small-damaged	Possible
"	"		Switchboard	No.1TY	2	Bombing	"	Impossible
East Pyongyang	Songyori	KVA 17,000	Three Phase Transformer	66/11KV 2500 KVA	1	Radiator Pierced by bullet Hits	"	Possible
"	"		O.C.B	66KV	1	Bush-Insulator damaged	"	"
"	"		"	3.3KV	4	Bush damaged by Bombing	"	"
"	"		Single Phase Transformer	66/3.3KV 15,000KVA	1	Radiator damaged and oil leaked	"	"
"	"		"	"	1	Oil leaked	"	"

No. 2

## War Damage to Transformer Substations

Name Substation	Location	Capacity	Tools and Machines	Standard size	Quantity	Outline of Damage	Extent of Loss	Repair
Nangnang	Nangnangni, Pyongyang	KVA 8700	Single Phase Transformer	66/22 KV 2500 KVA	1	Bush Damaged	Small-damaged	Possible
"	"		P.T.	22KV	2	Oil leaked due to bombing	Half-damaged	"
"	"		C.T.	66KV	1	Bush (1m <sup>2</sup> ) damaged	"	"
"	"		D.S.	22KV	2	Ruined due to bombing	Big-damaged	Impossible
Changgūnni	Pyongyang	1,200	No damage					
Pyongchŏlli	Pyongyang	6,000	Single Phase Transformer	22/33KV 2,000KVA	2	Radiator bombed and Oil leaked	Small-damaged	Possible
"	"		Lightening Arrester	33KV	1	Ruined	Big-damage	Impossible
Yusŏngni	Pyongyang	4,500	Relay	3.3KV	14	"	"	"
Inhŭngni	Pyongyang	16,000	Three Phase Transformer	66/3.3 KV 10,000KVA	1	Oil leaked	Small-damaged	Possible
Sadong	Pyongyang	2,100	No damage					
Imwŏn	Misalli, Pyongyang	1,200	No damage					
Chochŏn	Chŏdamni, Yongsanmyŏn, Taedonggun	22/110KV	P.T.		2	Completely burnt		
	Pyŏnggŏ-namdo	Three Phase 66/110 KV	P.T.		1	Machinegunned		
		66KV 400A	L.S		6	Completely burnt		
		22KV 400A	L.S.		18	"		
		3.3KV 400A	"		3	"		
		130 Tons						
		20	Crane		1	Damaged by 30 percent		
		5A	Ampere- meter		2	Completely burnt		
		5A	"		1	"		
		3/1.0	Voltmeter		1	"		
		500D	"		2	"		
		2001L2	Resistor		1	"		
Chochŏn	Chŏdamni, Yongsanmyŏn, Taedonggun, Pyŏnggŏ- namdo	30 Circuit Lines	Flashpoint Tester		1	Completely burnt		
			Switchboard		1	"		
			Telephone set		7	"		
		4M	DS Insulating Pole		4	"		
		4M	ICB Rod Pole		2	"		
		30 60T	Signal motor		1	"		
		250V/50A	Electromag- netic Switch		2	"		
			Electric welder		1	"		
			Drier		1	"		

## War Damage (As of October 1950 at Time of Recapture)

Name of Substation	Location	Equipment & Output	Tools & Machines	Outline of Damage	Remarks	Oil
	Chobdamdong, Yongsanmyon, Taedonggun	100,000x2 KVA 220KV/66KV	Tr	Bullets penetrated center of No. 1 Tr. Case; Bullets penetrated top of No. 2 Tr. Case; one Bush damaged	No.1 impossible to Use; No.2 useable after Repair	Oil Remained 60 percent at each Tr. (Volume of OT 77800L)
"	"	1300x4 KVA (66/22KV)	Tr	Completely burnt in bombing	Bombing	None
"	"	300x1 KV (66/3.3)	Tr.	Case punctured in Machinegun fire, but repaired	Usable after Supplying oil, and drying case.	None
"	"	300x3 122/3,3KV)	Tr.	Completely burnt in bombing	Unusable	None
"	"	66KV 1200 2 600A	O.C.B	"	"	"
"	"	22KV 400A2	"	O.C.B. Bush all damaged	Usable after replacing Bush	Some
"	"	220KV 800A 1 phase	E.C.B.	One phase of E.C.B. Bush Damaged	Ditto	None
"	"	66KV 600A	E.C.B.	(200/5A) at Room, one phase damaged	Usable after replacing T Room	"
"	"	Switchboard 8 Cable board 1 Inside board 1 Stationboard 6	Switch board	Completely burnt	Unusable	
"	"	10000KVA 2	Voltage Regulator	One set burnt; one set pierced in radiator	Usable	50 percent Oil remained in each set.
"	"	Arc Suppressing (20000KVA)	Reactor	Completely burnt	Unusable	None
"	"	66KV	L.C.B.	Insulator damaged	Usable after replacing insulator	
"	"	40M <sup>3</sup> 2	Oil tank	Burnt in machinegun fire		500 l. remained
"	"	66KV 50/5x2 5/5x1 22KV 40/5x2 50/5x2	6.7.	Completely burnt		None
"	"	Cable (62) Cotton Cable High Voltage Cable High frequency " D.S. Insulator (220KV) D.S. Insulator (66KV)	30000m 3000m 1000m 400m 20 10	Completely burnt " " Damaged in Bombing "	Unusable	
Chinnampb	Ohori, Chinnampb	1,000,000KVA	Transformer	Unusable		
"	"	10000KVA	Voltage Regulator	"		
"	"	400A	O.C.B 2	"		
"	"		Switchboard 12	"		
"	"		High Voltage Switchboard	"		
"	"	Special Core	Insulator Oil	1800001/ L.		
"	"	T.10m/m 6 core	Lead covered Cable	5000 M.		
"	"	7/0.8M/M 4 core	"	5000 m.		
"	"		Radiator	"		
"	"	15 percent	Electric Fan	4		
"	"	25 "	Circulating Electric motor	2		
"	"	Wall hanging	Telephone set 5	One high-powers set		
"	"	High power	"	2		
"	"	220T 100A	Three-Pole Switch	20		
"	"	100A	"	30		
"	"	112A	Storage Battery	2 sets		
"	"	Office Use	Swivel Chair	2		
"	"	"	Desk	2		
"	"	"	Electric Clock	2		
"	"	30 Circuit Lines	Converter	1		
Wönmüni	Wönmüni, Kuisöngmyöñ, Yongganggun	6000KVA & 450 KVA	Bushes 24	No damage		None
Kiyang	Kiyangni, Chemical Tongjinmyöñ Factory Kangeögun Substation	1000 KVA (66.7)	Transformer	Completely damaged	Bombing	None
"	"	66KV E.C.B. 2	E.C.B.	"	"	"
"	"	1/KV O.C.B.	O.C.B.	Two bushes damaged	No damage on tank	Some

War Damage  
November 1950  
Kangöñ Steel Mill  
Substation

POOR ORIGINAL



No War Damage

October 1950  
Namp'o Chemical Factory  
Substation

War Damage

<u>Name of Substation</u>	<u>Location</u>	<u>Equipment &amp; Output</u>	<u>Tools &amp; Machines</u>	<u>Outline of Damage</u>	<u>Remarks</u>	<u>Oil</u>
Namp'o Chemical Factory Substation	Hadaeduri, Chinnamp'o	1500KVA	Transformer 3	On one transformer, bush all damaged	Usable by replacing bush	None
"	"		OT.	Push damaged		some
"	"		D.C. Insulator	Insulator damaged		
"	"		AW3	All damaged	Unusable	

War Damage

October 1950  
Namp'o Zinc Substation

<u>Name of Substation</u>	<u>Location</u>	<u>Equipment &amp; Output</u>	<u>Tools &amp; Machines</u>	<u>Outline of Damage</u>	<u>Remarks</u>	<u>Oil</u>
Namp'o Zinc Substation	Hadaeduri, Chinnamp'o	KVA				
"	"	3500x2	Transformer	Radiator, Push damaged	Usable if repaired	None 12 \$
"	"	12500x1	"	Core damaged	Usable if oil is replaced	None 20 \$
"	"	9850x1	"			"
"	"	9850x1	"	Burnt out		
"	"	3000x1	Rott	Commutator damaged	Unusable	
"	"	Nine phase		Completely damaged	"	
"	"	Switchboard				
"	"	3000x1	Mercury vapor rectifier	"	"	

## War Damage

November 1950  
Chinnampb Glass Factory  
Transformer Substation

Name of Substation	Location	Equipment & Output KVA	Tools & Machines	Outline of Damage	Remarks	Oil
Chinnampb Glass Factory Substation	Masalli,	12,500x1	Tr.	1st & 2nd Bushes damaged, & one radiator machine gunned.	Usable	None (12150 L)
	Chinnampb	66KV 200A 3,000x1	O.C.B	Bush damaged	"	Some
			Tr.	No damage from bombing, but the Communists drained oil.	Usable if supplying oil	None (3450 L)
		200KVA 66/110Vx2	P.T.	Bush damaged by Communists	Usable	Some
		KVA 4,000x1	Tr.	"	"	"

All damages were done by the Communists before they fled.

## War Damage

October 1950

Name of Substation	Location	Equipment & Output KVA	Tools & Machines	Outline of Damage	Remarks	Oil
Nampb Soda Factory Substation	Tohangni, Chinnampb	22650	Tr.	1st, 2nd, 3rd Bushes damaged	2	None
		3000KVA	"	Two were fired at by the Communists.	2	"
		4500KVA	"	1st, 2nd Bushes damaged	3	"
		2510KVA	"	All bushes damaged	1	"
		4800KVA	Mercury-Uapor re-ctifier 6	Telegraph-Poles, vacuum-meter damaged	vacuum-meter damaged	One is reparable

(a)

Power Distributing Office

Chinnamp'o

\*

\*

(2) Real Condition of Operation.

A. Prior to 25 June 1950, the Nampo Office of the Pyongan-namdo Power Distributing Department was an affiliated organ of the Bureau of Electricity, Ministry of Industry, Democratic People's Republic of Korea, and its primary function was to distribute power to the Nampo city, Yonggang-gun, Kangsŏ-gun, and to one part of Taedong-gun. But, in effect, it also repaired transmission lines, collected power-rates, and disbursed funds that were necessary for power distribution. Transformer substations, however, were beyond its province, because they were operated by the power Transmitting Department, Bureau of Power Control.

B. Real Conditions as of October 1950. With the outbreak of the June 25 War, the Communists concentrated all efforts in the supply of power for army use. But soon the UN Air Force bombed out the Red military facilities, including munitions factories, located in areas under the jurisdiction of the Nampo Power Distributing Office,

When the Communists suffered heavy casualties in their losing battles, they called out the young employees at this office to the battle field, and almost stopped power distributing activities here due to lack of labor, and at the last stage of their tragic defect, they destroyed and burnt principal transformers and switchboards at the Yusari Substation, in Chinnampo, which used to receive current of 220KV from the SUPung Power Plant before they took to flight. At present, no electric power is supplied in areas under the jurisdiction of this office.

## (c) Operation Plan for the future.

After the liberation of North Korea by the UN Armed Forces, the inhabitants of the liberated areas regained freedom in every life, and now non-Communist workers are engaged in the restoration activities at this plant, which has been brought under the administration of the Construction Section, Chinnampb Municipality. After an election in North Korea, and with the establishment of an unified Government, the electrical industry will be operated under the direction of the Government.

## (4) General Inventory of Stores (As of 31 October 1950)

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u>			<u>Where fore of Differ- ence in Qu antity</u>
			<u>10 Oct.</u>	<u>19 Oct.</u>	<u>31 Oct.</u>	
(Electric Bulbs)						
Electric Bulb	100V/20W		22		0	Supplied to UN Army
Miniature Light Bulb	4.5V				13	
Pilot Bulb	0.11V				25	
Electric Bulb	220V/60W				2	
"	220V/40W				1	
(Electric Wires)						
2nd Class Wire	50 m/m	Kg			57	
"	40 m/m	"			83	
"	32 m/m	"			40	
"	26 m/m	"			8	
"	7/20 m/m	"			20	
3rd Class Wire	7/16 m/m	"			23	
"	18/20 m/m	"			500	
"	61/2.9 m/m	M			35	
4th Class Wire	1.2 m/m	M			6	
"	1.6 m/m	M			5	
"	127/30 m/m	M			20	
Uncoated Copper Wire	5.0 m/m	Kg			50	
"	4.0 m/m	"			10	
"	3.2 m/m	"			30	
"	2.9 m/m	"			28	
Twisted Copper Wire	7/20 m/m	"			190	
"	19/1.8 m/m	"			37	
Wire Cord		M	110		8	Supplidd to
Alumiumn Wire (3.2m/m)		Kg			2	UN Army
2nd Class Penmatic?						
Wire	40 m/m	"			14	
Telephone Cable		"			300	
2nd Class Pnenmatic?						
Wire	3.2 m/m	"			2	
Uncoated Hard Copper						
Wire	7/2.6 m/m	"			0	
Scrap Wire	"	"			660	

Articles	Standard Specification	Unit	Quantity			Where fore of Difference in Quantity
			10 Oct.	19 Oct.	31 Oct.	
Cable	7/0.8	M			720	
"	3 Core 225	"			18	
(Insulators)						
High-Voltage						
Petticoat Insulator 6,000V					310	
Low-Voltage "					547	
Outdoor Busba "					26	
High-Voltage Large						
Petticoat					78	
High-Voltage						
Three-Pold "					36	
High-Voltage						
Petticoat "					345	
High-Voltage						
Standoff "					204	
Low-Voltage						
Sarge Double "					106	
Low-Voltage						
Medium Double "					223	
Low-Voltage						
Small Double "					19	
Low-Voltage Large						
Petticoat Z					93	
Low-Voltage Medium						
Petticoat "					5308	
Low-Voltage Small						
Petticoat "					380	
Sabot Knob "					126	
Low-Voltage						
Split-knob "					15	
Low-Voltage Fixed						
Insulator					23	
296 Knob					5,000	
Z Knob					42	
S Knob					178	
Miniature Knob					440	
Insulator-type						
Switch					45	
Flanged Ins-					2523	
ulator					427	
"					60	
"					622	
"					528	
"					40	
"					545	
"					0	
"					0	
Flangeless In-						
sulator Tube					8,000	
High-Voltage						
Insulator tube					15	

Articles	Standard Specifying Unit	Quantity			Where fore of Difference in
		10 Oct.	19 Oct.	31 Oct.	
Double Wire Cleat					3323
High Voltage Insulator					4
Flangeless Insulator Tube					3
"					1
"					9
Special High Pet-ticoat Insulator					5
"					2
"					27
(Watt-Hour Meter)					12
Watt-Hour Meter	100V/3A				797
"	5A				1,500
"	10A				1
"	100V/15A				76
"	20A				5
"	25A				20
"	30A				7
"	50A				2
"	75A				1
"	100				1
Three Phase meter	220V/3A				89
"	10A				110
"	20A				19
"	30A				18
"	50A				9
"	100A				1
" (out of order)	20A				
High Voltage Meter (outdoor)	3300				1
"	20/5A				1
"	30/5A				1
"	3300 400/5A				1
"	3300 10/5A				1
" (indoor)	3300 75/5A				1
" (outdoor)	3300 100/5A				2
" (indoor)	3300 30/5A				
G					2
" PT (indoor)	3300/110V 50/5A				
(Tools & Machinery)					
Closed Oil circuit					9
Switth	100V/100A				4
" (out of order)	"				11
"	100V/30A				1
"	"				
Closed Oil circuit					7
Switch (Bipolar)	3500V/50A				11
"	3500/100A				9
Disconnecting Switch	200A				198
"	100A				6
Voltameter	1500V/100A				
Alternative Current					10
Volta meter	250/75				11
"	1000/30				

Articles	Standard Specification	Unit	10 Oct.	19 Oct.	31 Oct.	Where fore of Difference in Quantity
Alternative current Voltage meter	250/50		1			X
Voltmeter	1000v/150A		2			X
Alternative current Voltmeter	1000V/50A		1			X
'Senda' Stove			3			X
'Fukuroku' Stove			10			X
Electrostatic Condenser	220V/75mm-		1			X
"	220V/100MF		2			X
Voltmeter (out of order)	10A		2			X
Outdoor Oiler PT			2			X
Outdoor Oiler CT			3			X
Choking Coil	200A					X
Current Limiting Resistor			6			X
PT Porcelain Stand			2			X
Meter deflector	110V/30/5A		1			X
"	110V 20/5A		2			X
"	110V 16/5A		1			X
"	110V 400/5A		1			X
Transformer Bushing	22KV		2			X
Overload Relay			2			X
Double, Wire (able head)			1			X
Ground Detector	22K					X
Electro-Magnetic Switch	MA Type		1			X
Electro-Magnetic Crane	440/15 h.p		1			X
Closed antenna Switch (out of order)	3500200A		3			X
"	50A		1			X
(Tools)			18			X
Driver	3 inches		4			X
"	6 "		8			X
Branch Cutting Seissors			23			X
Pickaxe			27			X
Mattock			12			X
Hoe			338			X
File	25 inches		18			X
File (Miniature type)	4 "		18			X
"	5 "		0			X
"	6 "		2			X
"	8 "		0			X
File	Flat 12 inches		45			X
File	Crude 12 "		5			X
"	Angle 12 "		4			X
"	Flat 14 "		0			X
'Handa' Trowel	medium 14 "		1			X
"	100 inomlue		1			X
"	200 "		3			X
Bite	12-16		2			X
Saw (Single blade)	large		2			X
"	small		2			X
Auger	4 'bu'		1			X
"	2 'bu'		1			X
"	5 'bu'		8			X
Electrician's Knife			3			X
Sleeve screw			1			X
Pinchers						X



Articles	Standard Specification	Unit	Quantity	31 October
'Best' (?)	small			0
Wheelbarrow				2
Chisel				8
Drilling auger	5 'bu'			2
"	4 "			1
Monkey Spanner	8 inches			2
"	6 "			2
(Transformers)				
Transformer	1 KVA (burnt)			7
Transformer	2 " "			9
"	1.5 " "			1
"	3 " "			7
"	4 good			4
"	5 burnt			8
"	7.5 "			3
"	1.5 "			5
"	20 "			3
"	30 good			1
"	50 burnt			8
" three phase	2 "			1
" "	7.5 "			1
"	3KVA burnt			1
"	5 " good			1
Busuda (?)	10A burnt			1
(Fiber Products)				
Hemp Rope	4 'bu'	Kg		11
Flax Rope	5 "	"		120
Manila Rope	7 "	M		0
"	6 "	M		10
(Miscellaneous)				
Paper				350
Straw Rope		Role		36
Bicycle	out of order			4
Dry Battery	"			80
Door wheel	"			18
"				4
Tinplate Fuse (arrier)				34
Fuse-Carrying Container				115
Cement		bag		450
Old Cloth		'kwan'		4
Ceiling Cord tape				2
Stove Hook				10
Iron Ring				18
Tea Pot				2
Hinge				40
Watering Pot				2
Coal		bag		50
Fibrous Filler for Plaster		'kwan'		10
(Lumber)				
Telegraph Pole				7
Low-Voltage Beam	4 ft.			35
"	5 "			240
"	6 "			65
"	8 "			300
Sawn Lumber		'sai'		1,000
Mine Post				20
(Non-ferrous)				
Sealing Lead				5370
Poles		Kg		2

Articles	Standard Specification	Unit	Quantity 31 October
(Oils and Fats)			1,728
Transformer Oil		L	<del>1,728</del>
" (adulterate)		L	405
Mobile Oil	18 L	can	9
Grease	"	"	2
'Best' (?)		L	18
Insulator Oil		L	18
(Paints)		g	0.4
Coaltar		Kg	3,000
Creosote		Kg	242
Sulphuric Acid			
(Rubber Products)			2
Automobile Tire			37
Rubbish Sack		20	
(Wire Products)			
Nail	1.5 inches	Kg	15
"	4.5 "	"	75
Wire	No.6	"	110
"	No.12	"	53
Sealing Copper Wire		Roll	2
Wire	No.14	Kg	7
(Old Gold Production)			
Arrester	66KV		2
LS (2 insulators missing)	25KV/400A	set	3
C/T.	22KV		1
OCB	33KV/100		1
Oil Circuit breaker			1
Marble Switch board			1
(bottom)			1
O.C.B. Hanger	33KV		3
LS	22KV/400A	set	8
Manometer			
O.C.B. Hanger	33K		1
"			1
Conductor Finger	22KV		1
O.C.B. Hanger			1
Oil circuit Breaker		set	1
"	66KV	"	1
CT Tank	(no insulator)		2
CT Transformer Bushing			2
CT Bushing			2
CT Tank		set	2
Recorder	33KV		1
Transformer Bushing	22KV		1
Miniature Bushing	22KV		2
CT Tank	66KV (for insulator)		2
CT Bushing	22KV		2
"	22KV		2
CT	5/5A		2
Zero Phase CT	3300/400A		3
D.S.	33K/400A		1
Manometer	22KV		3
Choking Coil	22KV		3
OCB Operating Pole	66KV		1
CT Tank	66KV (insulator type)		2
O.C.B. Conductor Pole			1
Marble Switchboard	Upper & Lower		2
"	"		2
O.C.B. Operating Pole	22KV		1
O.C.B. Elevator Metal fitting		set	1
PTCF Fixture			18
Lighting Conductor Hose	22KV		4

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantitys</u> <u>31 October</u>
OCB Hanger	33KV		1
Drum Coil			40
CT Bushing	22KV		2
PT	33 110/50		6
Oil Circuit Breaker			
Hanger	69KV/400A		1
P.S.	11KV/200A		2
Choking Coil	22KV		3
" (no insulator)	66KV		5
Choking Coil Insulator			2
Transformer Bushing	22KV		2
LS	22KV/200A	set	1
OCB Three-Pipe Stand	33KV		1
Choking Coil	22K	set	1
O.C.B. Operating Pole	22KV		3
Choking Coil Insulator	400A		8
LS Insulator	22KV		3
O.C.B. Three Phase	33KV/100A		1
Choking Coil (no insu.)	200A		3
Conductor Finger			5
Transformer Bushing	small type 33KV		4
Cork	large		3
"	small		5
Locknut	1 1/2 inches		2
"	1 inch		2
"	3/4 inches		15
Choking Coil			
(With Insulator)	400A		3
"	66KV		3
Hook Pole	2 m		2
"	1.7 m		2
Base Bolt	6 inches		20
"	10 inches		2
V Bolt	3/10 inches		11
V Clevis			6
LS Revolving Metal			
Fitting	large		9
"	small		18
Pipe Contactor			1
Cup Ring	2/8x2 "		2
Switchboard			1
Hinge Base			12
Socket Re-fuser	1 1/4x 1 1/2		24
Bolt	3/4x10 inches		4
"	5/8x10 "		4
"	5/8x6 "		9
"	1/2x4 "		23
Lock Nut	1 1/2 "		2
"	1 inches		9
"	1 1/4 "		9
Strain Bushing			130
'Flower' Turbine			505
Switchboard metal Pipe			124
Coil			2
PT	3300/110		3
CT	5/50		3
Switchboard Control			
Metal Fitting			225
Bolt	5/8x1.5 inches		825
"	1/2x1.5 "		326
"	1/2x5.5 "		320
High Voltage In-			
sulating Porcelain			
Bushings			163
Hinge Base	22KV		4
Lock Nut			4
Disconnecter Stand			1

<u>Article</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 October</u>
Hinge Base	22KV		4
Lock Nut			4
Disconnecter Stand			1
OCB Stand			10
OCB Handle Switch			5
Normal Bender	1/8x1 1/2		5
Telephone Insulator			932
LS Control Metal Fitting			18
Nut	6 'bu'		718
Scrap Cable	2x50	m	3
"	4x5.5	m	36
"	2x7/10	m	35
"	4x5.5	m	30
"	3x5.5	m	70
"	2x5.5	m	64
"	3x14	m	52
"	4x5.5	m	80
"	4x7/0.6	m	30
			541
Strain Insulator			1
Mouthpiece (?)			6
Reactor			7
Oil Distributing Cork 1 1/2			3
Pulmotor Bushing			2
Oil Gauge			9
Oil Distributing Cork			7
Trunk Line Insulator			18
PT Fuse Stand			
Current Limiting			1
Resistor (with insulator)			1
Instrument transformer			2
Potential transformer			
Disconnecter control			2
metal Fitting			1
OCB Controller			3
Switches in Sections 66/200A			1
Switches in Sections 100A			1
Finger arrester			1
" Magnetic Stand			2
Voltameter	50A		2
"	5A		1
"	80A		1
"	75A		1
Ground Relay			2
OCB Bushing	33KV		1
Cutting Bushing			2
Fuse Magnetic Stand			
OCB Insulating Porcelain			2
Bushing	Pinned		
Conductor Fuse	5A		6
"	20A		8
Gauge Deflector	5/5A		2
Coil			2
Power Factor			1
Switchboard Pilot			1
cutting Machine		set	4
Deflector	20/5 210/5		3
Manometer			7
OCB Operator	27KV		1
DS Fuse	66KV		2
Arc Control Machine			1
Conductor Finger			2
Drum Coil			

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 October</u>
OCB Operating Handle		set	1
OCB Operating Pole			1
Arc Control Machine			2
Sand drum Coil			1
DS Fuse			4
"			5
Power-Factor Meter	110/5A	110/5A	3
"	1000V		1
KW Meter	32/110		3
<del>XXXXXX</del> "	1000V		1
Ground Relay			1
Resistor			4
Gas Bender			1
PP Tube-type Fuse			5
Oil Cork			3
Oil Gauge			2
Coil			1
Voltameter	50A		3
"	80A		1
Carbon Resistor			3
Manometer			6
Ground Relay			1
Overload Relay	out of order		2
Ground Relay	"		1
OCB Insulating			
Porcelain Bushing			1
Choking Coil	"		1
OCB Oil Cork Pipe			3
OCB Signal Light Bulb			1
OCB Oil Gauge			3
Sand drum Coil			7
Conductor Finger			14
Remote Control Dis-			
connector	400A		5
Hinge Base			4
Lock Nut			4
Ground Relay			2
Current Limiting Resistor			1
V Shape meter			1
Power-Factor Meter			1
Signal Socket	out of order		2
Switchboard Knob			1
Signal Lens	blue, red		2
DS	400A		3
OCB crane			1
PT Magnetic Stand			6
Coil			3
OCB Insulating			
Porcelain with core			8
Bushing	33K		X
Switchboard Signal			
Light Bulb	blue		2
"	red		12
Socket			5
Magnetic Stand	small type		7
Engrossed Fuse	20w		29
"	30A		17
"	75A		18
"	5A		30
Oil Gauge			1
Switch Handle			2
Clamp for Iron tower			49
Pipe Connecting			
Metal Fitting			30

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 October</u>
OCB Cut-in Indicator	66KV		1
OCB Operating Pole			2
OCB Pipe			1
Suspension Lamp			23
OCB Operating Pole	66KV		1
LS Insulator			1
OCB Hanger			1
DS Knife			3
DS	200A		2
Receiving Switchboard			1
OCB Hanger			5
PS Fuse	200KV (No Fuse)		3
"	22KV (out of order)		392
Carbon			
Switchboard Assembling			29
Pipe			28
Switchboard Pipe			30
"			12
"			46
"			27
Switchboard Pipe			16
"			18
"			17
"			19
"			53
LS (out of order)	66KV/400A		1
DS	66KV		2
Deflecting Coil	(with insulator)		3
CT	22KV		1
LS Insulator	1	set	2
Balancing Deflector	Three Phase		2
OCB Rolling Metal			2
Fitting	32K		24
PT Magnetic Stand	for double line		4
"	" single line		40
PT Fuse	1A		8
"	0.5A		29
"	75		26
PT Fuse			
Switchboard Indicating			6
Lamp	red		40
"	blue		7
Oil Gauge			2
OCB Bushing	33KV		
LS	22KV/200A	set 1 insulator missing	3
LS	22K/200A	"	3
OCB Hanger	33K		1
DS Pole	1300 m/m		6
DS Control Pole			6
OCB Bushing	33K		11
Balancing Deflector			5
D.I. 'Sedo'	33KV/100A		8
OCB Switchboard	33KV/100A		1
Oiling circuit breaker			4
Parts with Handle			1
LS	22KV/400A	set	
Lightning Arrester			2
board	22KV		3
LS	25/400A	"	1
CT	22KV 10/5		1
CT			24
Earth Pipe Pole			7
OCB Handle Pole			2
CT Bushing	22K		

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Arc-Suppressing Reactor			1
Switchboard			1
Receiving Switchboard			1
Switchboard Pipe	2ft.		7
Inside Receiving Switchboard			1
Inside Distributing Switchboard			1
LS Pipe			4
LS Controlling Handle			2
Switchboard Pipe	1 1/2 inches 16ft.		1
"	1 inch 6ft.		1
"	1 1/4 inch 9ft.		1
"	1 1/2 12 ft.		1
"	1/2 inch 12ft.		1
CT	22K 18/5A		1
LS	22KV/400A		3
OS Axle			28
OCB Bushing	33KV		4
OS insulating Porcelain Bushing	m		30
Switchboard Handle	60.2		1
OCB	69KV/400A	out of order	1
CT Bushing	22KV		2
CT	22KV		2
Manometer			3
Choking Coil	3 lime (with insulator)		1
OCB Signal Lamp			1
Transformer Bushing	22K		2
Conductor Axle	large		6
OCB Insulator Axle	small		8
Handle			1
Copper Sleeve	1/29 m/m		1466
DS. Insulator			6
Copper Wire	4/1 m/m		100
Copper Sleeve	12/35		10
"	7/2.3		97
Copper Sleeve	7/2.6		1139
Iron	4.5		3550
Copper Sleeve	7/2 6-7/3.5		20
"	7/29-7/3.5		19
Iron Sleeve			2350
Oil Tank			2
High Voltage Ball Insulator			16
Trunk Line Insulator			14
Pole Spike	1/2x16		2170
Bolt			500
Arm Pin Axle			838
Arm Stand	26 inches		58
Pipe	3 1/2x420 m/m		6
"	2x3		1
"	1 1/4x9 large		2
"	1 x6ft.		1
"	2x5ft.		3
"	1/2x12ft.		9
"	1/2x5		2
"	1x13		1
"	1x12		1
"	1x9		1
"	1/2x7		8
"	1 1/2x3		3
Wire Clevis			68
U-Clevis			11

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity 31 Oct.</u>
Washer	5/8		12
Lock Nut	2 inches		36
"	4 inches		26
String Lamp			21
U-Clevis			310
Ring			558
V-Bolt	5 'bu'		202
Marble Switchboard		plate	2
Bus Bar Clamp			123
String Lamp			18
Flot Plate Metal Fitting			20
Top Axle			23
Bis (?)	22K		226
"	66K		10
Cross Metal Fitting			32
Special Clamp			194
Bushing (out of order)	22K		1
String Lamp			240
Washer			64.748
U-Bolt	3 inches		540
Hook			129
Bolt	5/8x10		110
" (With nut)	5/8x23		43
"	3/0x30		21
"	3/0x2		244
Normal Bender			90
Suspending Lamp			1905
PS Metal Fitting (no insulator)			2
"			1
VS Metal Fitting (No insulator)			2
VS Control Iron Stand			1
VS Metal Fitting (no insulator)	66KV/400A		1
String Lamp			1277
Double Clamp			23
8 Shape Ring			100
Wire Clamp			184
"Yogu" (?)			29
Suspension Clamp			226
Cross Metal Fitting			27
Hook			2090
U-Clevis			2848
Topping Axle			1017
Bas8			1380
'Bogu' (?)			60
String Lamp	14 inches		24
V Bolt, large			24
String Lamp	20 "		18
(?) Lamp			55
Bolt, small			50
(?) Turbine			50
Cable	2 core 353	m	540
"	3 core 555	m	70
Scrap Cable	2 core 7/0.8	m	75
"	3 core 7/0.8	m	19
"	2 core 7/1.0	m	12.5
"	3 core	m	3
"	2 core 3.58	m	7
"	2 core 3.58	m	10
Twisted Iron Wire	7/2.0	Kg	16
Scrap Uncoated Copper Wire	12 m/m	Kg	128
Transformer Hanger			16
Scrap twisted Copper Wire	7/2.6	Kg	131
Uncoated Copper Wire	9 m/m	Kg	186
Transformer Bushing	66KV		2



<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Arc Suppressing Reactor	66kv		1
Transformer Bushing	"		2
Reactor O.C/B. Controller			1
PT Bushing	66KV		4
PT	66KV		1
"			1
Transformer	300K		1
OCB	22KV		1
Transformer Bushing	66KV		2
Reactor OCB	5KA		1
VS (4 insulators our of order)	66KV		2
Transformer Bushing			1
Dry Pulp			1
'Busuba' Insulator			580
"	out of order		521
DS Insulator			257
'Biri Insulator			200
"	"		42
Double Insulator	good		604
"	out of order		254
Angle	65x65x2m		400
"	90x90x5.40		90
Pipe	1/8x3.5inch.x20inch		31
Box Angle			5
Switch handles			2
O.C.B.	66K	set	1
Empty Can			100
Transformer			1
Scrap Wire		k	660
Telephone Protector			2
Transformer Bushing			2
(Wiring Tools)			
Sealing			15
Magnetic Stand			6
'High-Pole' Stand			1,300
'Low-Pole' Stand			17
Switch-pole Stand			664
White Bulb			622
No.1 Holder			3,935
One Holder			87
'Hōkoku' Holder			764
Concent (?)	20A		249
Ceiling Lamp			152
Safety Switch	10A 125		145
	20A 20		
Fuse Box			74
Bipolar Switch (Edged)	100A		32
"	50A		22
Tripolar Switch (Edged)	300A -100A		2
Bipolar 'Kansaki' Switch	30A		1
Indoor Switch			3
Key Socket			0
Chrysanthemum-Shape Socket			20
Magnetic Socket for Placket			5
Mori-pattern Placket			31
Ceiling Placket			1
Chain Placket			3
C-pattern Iron Placket			8
Glove	12 inches		286
"	10 "		10
"	8 "		135

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Moris Cord-shape Socket			15
Lead Glove			1
Handle Glove			5
Iron-Steel Glove			2
PI Setter			15
Metal Setter			52
Anti-aircraft setter			5
Moris Enamelled Setter	No.9		10
"	No.100		4
"	No.140		10
Pneumatic Setter			1
Moris Placket Setter			134
Coach Setter			12
'Nasu' pattern Double Setter			1
Coach Holder	10A		2286
"	50A		867
"	75A		39
"	100A		524
"	150A		0
"	250A		99
Filament Fuse	10A		1
"	15A		2
"	25A		21 1/2
"	30A		13 1/2
"	40A		11
F "	50A	Roll	20
"	100A	"	4 1/2
Metro-Tungsten	Fuse 0.13A		600
"	0.2A		900
"	0.3A		1,000
"	0.4A		970
"	0.6A		1,000
"	1A		1,000
"	1.5A		1,000
"	2A		1,000
"	3A		1,000
"	5A		1,000
Link Fuse	1A		5,160
"	2A		4,800
"	3A		4,950
"	5A		3,069
"	10A		330
"	15A		1,537
"	20A		4,574
"	25A		1,500
"	30A		1,375
"	40A		488
"	50A		2,110
"	75A		0
"	100A		1,850
"	200A		5,157
Plate Fuse	75A	Roll	5
Engrossed Fuse	10A		6
Meter Fuse	3 in a case		216
Earth Pole			1,113
Earth Plate			391
Attaching			330
Mould board			60
Wooden Pole	No. 9x1 1/4		4,916
"	1 inch		1,660
"	No.10x1 3/4		10,224
"	1 1/2		5,251
"	2 inches		4,2210
"	2 1/2		4,059
"	2 1/4		4,086

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Cotton Tape		Roll	1
Mica Tapé		"	40
Aluminium Tape		Kg	11500
Antiseptic Tape for (Telegraph Pole Base)		Roll	3
Moris Cocent with Washer	10A		130
Embedded Concent (?)	20A		10
"	10A		130
"			1
Embedded Concent Plate			38
"			5
Embedded Concent Plate			5
Moris Hand Lamp			11
Embedded 'Tokuru' plate	3 'Yon'		4
"	2 "		7
"	3 "		5
"	4 "		1
Gangswitch Plate	1 "		30
"	2 "		13
"	3 "		9
Cloak Hanger Concent			5
Rubber Embedding Block			1
Chain Lamp			2
Eyelet set			24
Counter			6
Car (?) Black	6 3/4		13
"	66l		7
"	12x1 3/4		2
"	12x1 1/2		65
Moris Pole Lamp Fitting			large 3
			small 3
Car(?) Black	8x1 1/2		3
Ceiling Lamp			1
Set Bolt			47
Button Switch			5
'Mogiru' Socket			7
Three-Fold Switch (Iron and Steel tools)			5
Davis (?)	1/8x3/4		13
Pipe Cup	1/2x1		14
"	1/8x3/4		20
Union Cup Ring	1/8x1		16
Pipe Cap	1/8x1 1/2		19
Wager (?) Cup	1/8x1		33
Cup Ring	1/8x1		58
(Knockout' refuser			56
Lock Nut			10
Sharp Bender	1/8x1		9
Union Coupling	1/8x3/4		19
<del>XXXXXXXX</del> "	1/8x1		19
Lock Nut	1/8x1		56
Normal Bender	1/8x1 1/4		2
Bushing	1/8x1		83
Angle-shape Joint Box			12
C-Shape Log			10
Octagonal			2
C-shape concrete			4
Switch Box			13
Wager Cup	1/16x1 1/2		8
Service Elbow	1/16x 1 1/4		28
Cup Ring	1/16x1 1/8		

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Octagonal			1
'Conjojet' Box			1
Octagonal			2
Outlet Box			4
Miniature Lead Box			77
Miniature Joint Box			3
(Iron & Steel Tools)			255
Lunifrom Outdoor Lamp			0
Coach Screw			0
Pole Spike			0
Clasp Fitting	6 ft.		0
"	7 ft.		0
"	9.5 "		0
Washer&g	5 "		498
Round Box Cover			3
Nut	5/8		524
Bushing			26
Lock Nut	1/8x1 1/4		60
One-hole saddle	1/8x1		3
Two-hole saddle	1/16x1 1/4		1
Wager Cup	1/8x1 3/4		23
Cup Ring	1/8x1		43
Union Cup Ring	5/8x1/2		19
Cup Ring	1/8x1/2		7
Atabota (?)			38
Sharp Bender	1/8x3/4		3
Bushing	"		38
Sharp Bender	1/8x1/2		27
Normal Bender	1/8x1/12		9
Lock Nut	1/8x3/4		62
Atabota (?)	1/8x1/2		76
Lock Nut	1/8x1/2		90
Bushing	1/8x3/4		1
Bolt	5/8x13ft.		2
"	14ft		1
"	15ft		17
"	16ft		2
"	18ft		1
"	20ft		2
"	40ft		101
"	3/4x24ft		12
Arm stand	50ft		29
"	24ft		1
"	26ft		5
"	30ft		70
"	31ft		1
"	33ft		2
"	36ft		4
"	48ft		3
"	40ft		11
"	41ft		0
Y-Shape Arm Stand			100
Two-hole Strap	7ft		6953
"	9ft		100
"	11ft		11
Three hole strap	12 "		2
"	14 "		505
Five-hole strap	25 "		6
"	36 "		147
Bolt	1/2x15 "		2
"	4 "		1040
"	4.5 "		1617
"	5 "		99
"	6 "		19
"	7 "		309
"	8 "		147
"	9 "		0
"	10 "		24

Articles	Standard Specification	Unit	Quantity 31 Oct.
Bolt	11ft		4
"	12 "		12
"	13 "		1
"	16 "		51
"	3/4x2ft		61
"	5/8x1.5ft		11
"	4 "		203
"	45 "		34
"	5 "		110
"	5.5 "		45
"	5/8x6"		1064
"	7 "		282
"	8 "		270
"	9 "		97
"	10 "		191
"	11 "		11
"	12 "		4
"			40
Round Joint Box			33
Switch Box			
Octagonal			27
Medium-size concrete Box			
Octagonal			4
Miniature-size concrete box			12
Switch Box			
Octagonal			5
Medium-size concrete box cover			19
Medium-size outlet box			117
Cup Ring	1/10x5/8		149
"	1/10x3/4		69
Wager Cup	1/10x3/4		10
Lock Nut	1/14x1 1/2		23
Service Cup	1/10x5/8		30
Wager Cup	1/11x5/8		19
Normal Bender	1/10x5/8		21
Round outlet Box cover			48
Sharp Bender	1/10x3/4		64
Normal Bender	1/10x3/4		129
Lock Nut	1/11x5/8		3
Union Cup Ring	1/10x 1 1/4		2
C-Shape Davis	1/10x5/8		1
Normal Bender	1/10x1 1/4		42
Lock Nut	1/10x5/8		9
Bushing	1/16x1 1/4		10
Service Log	1/10x1		9
Bushing	1/10x3/4		57
Sharp Bender	1/10x5/8		167
Cup Ring	1/10x1		6
Wager Cup	1/10x1		31
Cup Ring	1/10x1 1/2		178
Lock Nut	1/10x3/4		35
Bushing	1/10x1 1/4		81
Lock Nut	1/10x1		44
Normal Bender	1/10x1		11
C-Shape Log	1/10x1		11
Union Cup Ring	1/16x1		5
C-Shape Cross	1/16x1		10
"	1/16x3/4		
(Old Idle Materials)			10,000
Bolt	1/2x4		500
"	5/8x4		50
"	5/8x6		1,500
Twahole strap	2x7x1/2		30,000
"	2x7		300
Five-hole strap			40
Normal Bender	1/10x5/8		30
"	1/10x3/4		

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u> <u>31 Oct.</u>
Cup Ring	1/16x5/8		400
"	1/10x3/4		300
"	1/10x1		100
Sharp Bender	1/16x5/8		50
"	1/16x3/4		50
Lock Nut	1/10x5/8		200
"	1/10x3/4		0
"	1/16x1		200
"	1/8x3/4		200
Bushing	1/18x1 1/4		30
"	1/8x1		0
Knockout Refuser			400
Wager Cup	1/10x5/8		50
B-Shape Sleeve	3.2 m/m		100
S-Shape Sleeve	1.6 m/m		100
"	2.0 m/m		100
Octagonal			
Outlet Box	Medium size		35
'Nokel' Refuser			50
Nichrome Wire			9541
High Pole Stand			49600
Low Pole Stand			30600
Switch Pole Stand			500
Automatic Bulb			174000
No.1 'Sedo' Holder			13000
'Hökokku' Holder			200
Metro-Tungsten Fuse	G 13		19000
"	0.2		9000
"	0.3		9000
"	0.4		9000
"	0.6		9000
"	1A		2000
"	1.5A		2000
"	2A		2000
"	3A		2000
"	5A		2000
Fase Box			2000
Low-Voltage Petticoat			
Insulator			1710
Flanged Insulator Tube	3/8x6		12500
"	1/2x1		3500
"	1/2x6		17000
"	5/8x1		1000
"	5/8x7		50
"	5/8x15		50
"	2/8x7		1000

## (6) Division of Duties

## (a) Staff Organization and Service Regulations Division of Duties.

- (1) Matters concerning Counter plans for Demand and Supply of Labor.
- (2) Matters concerning labor administration and Labor Discipline.
- (3) Matters concerning calculation of wages.
- (4) Matters concerning calculation of bonuses

- (5) Matters concerning Social Insurance
- (6) Matters concerning Collection of Labor Statistics
- (7) Matters concerning Personnel Administration
- (8) Matters concerning Accurate Accounts of Travel Expenses of Office employees.
- (9) Matters concerning keeping of Secret of Personnel, etc.
- (10) Matters concerning collection of Personnel Statistics.
- (11) Matters concerning Executive Training
- (12) Matters concerning Reception and Despatch of Documents.
- (13) Matters concerning keepigg of Official Seals
- (14) Matters concerning Management of Apartments and Government Buildings.
- (15) Matters concerning Laws and Books
- (16) Matters concerning Purchase, Distribution, and Control of Welfare Commodities.
- (17) Matters concerning welfare Facilities for Employees
- (18) Matters concerning Health, Comfort, and aid of employees.
- (19) Matters concerning Welfare and Cultural Works.
- (20) Matters concerning Apartments and Government Buildings
- (21) Matters concerning Construction and Repair of Apartments and Government Buildings
- (22) Matters concerning Adjustment and Custody of Supplies.
- (23) Matters concerning Composition and Execution of Budget.
- (24) Matters concerning Settlement of Annual, Quarterly, and Monthly Accounts.
- (25) Matters concerning Adjustment and Preservation of Account Books.
- (26) Matters concerning Cost Accounting
- (27) Matters concerning Amortization
- (28) Matters concerning Custody of Property.
- (29) Matters concerning Establishment of Annual and Quarterly Fund Plans.
- (30) Matters concerning Sundry Taxes, Loans, and Debts.

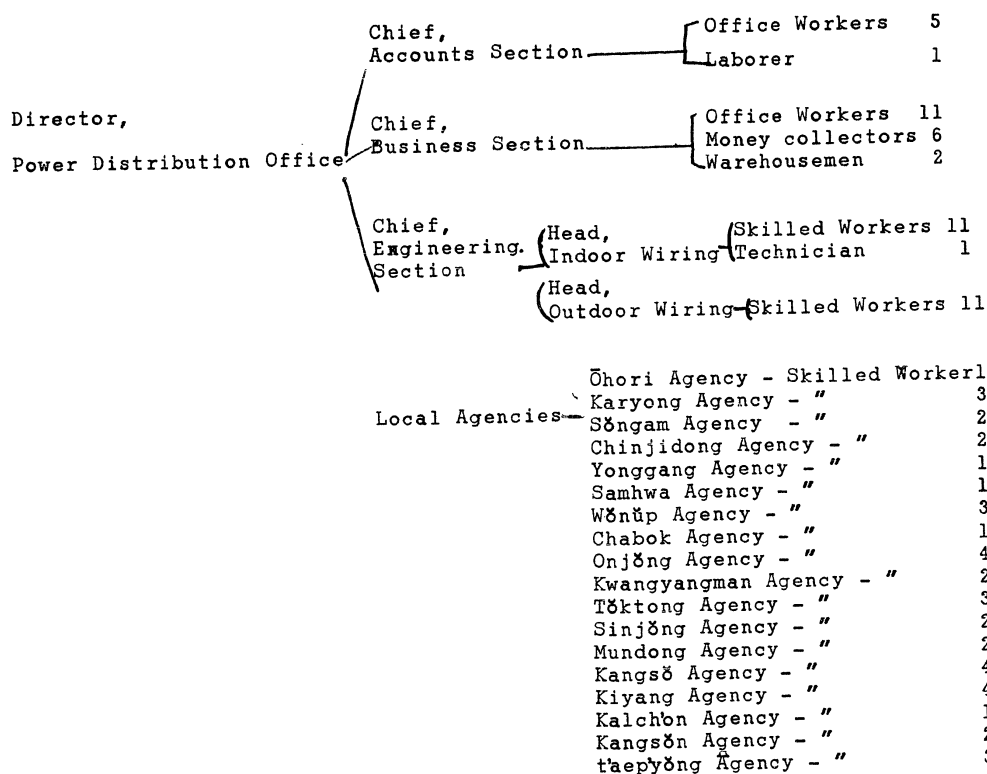
- (31) Matters concerning Adjustment and Preservation of Vouchers and Account Books.
- (32) Matters concerning Accommodation and Operation of Funds.
- (33) Matters concerning Receipts, Disbursements, and Custody of Cash and Securities.
- (34) Matters concerning Payment of Salaries and Allowances.
- (35) Matters not Falling under Other Sections.

Business Section:

- (1) Matters concerning Establishment and Execution of Operation Plans.
- (2) Matters concerning Composition of Budget of Business Receipts.
- (3) Matters concerning Settlement of Business Receipts.
- (4) Matters concerning Sales of Electric Bulbs.
- (5) Matters concerning Regulation and Operation of Power Supply.
- (6) Matters concerning Inspection of Business
- (7) Matters concerning Compilation of Business Statistics and Business Reports.
- (8) Matters concerning Establishment of Counter plans for Prevention of Wasteful Use.
- (9) Matters concerning Calculation and Assessment of Power Rates.
- (10) Matters concerning Investigation of Tendency and Real Condition of Power Consumption.
- (11) Matters concerning Adjustment of Supply Areas.
- (12) Matters concerning Adjustment and Collection of Power Rates and Other Receipts.



## Staff Organization:



## B. Order System.

All orders came from the Power Control Bureau, Ministry of Industry, to the Power Distributing Department, Pyŏngan-namdo, then these orders were relayed by the same Department to the Chinnampŏ Power Distributing Office. Generally speaking, the Communist leaders put more energy into the political phase rather than the industrial phase. Thus, in order to infiltrate Communism among the ranks of employees, they organized Labor Party cells in all factories, where the cell chairman executed the orders transmitted by the Chinnampŏ City Chapter of the Labor Party. So non-Party members had not a particle of authority in all workshops, including power distributing agencies, where only the party bosses act like puppet players.

## (3) Attendant Undertaking

## D. Attendant Property

## a. Land

Name of Power Plant	Transformer Substation	Office	Employees Homes	Dormi- tory	Water- way	Reser- voir Annex	Re- marks
		Pyöng	Pyöng				in City
		899	1589.25				outside
		620					the City
							(Agency)

## a. Buildings

Kind Particulars	Power Transf. Plant Subst.	Employees Home	Dormi- & story house	Ware- house Annex	Office	Other	Re- marks
Story		One & two storied	One Stored		One & two storied		One Emp. home 1
							Off.bldg
							2 storied
in city		390.07					included
Floor		Pyöng	194.5 "		76.75		
Area	Agency				143.00		
Roof		Tile-roof	Tile-roof		Tile-roof		

Power Distributing Equipment (Destroyed)

Transformer Substation	Lines	Section	Length	Extension	Number of Supportin Poles	No. of Pole-TV	Re- marks
No.1 Substatin	Trunk Line	40-49	380m	4560m	10	12	
"	No.2						
	Connecting "	7-17	400m	1200m	10	6	
"	Station Line	1-14	560m	1680m	14	3	
"	Flour Mill Line	1-12	480m	1440m	3	3	
"	Custom house L.	2-11	360m	1080m	1	4	
"	New Inspection Line	37-38	70m	210m	1	-	
Kihwa Subst.	Common Power Line	5-12	315m	1890m	2	4	
"	Old trunk Line	3-10	315m	945m	1	2	
			2880m	13005m	47	34	

31 August 1950

Power Distributing Dept,  
Pyongnan-namdo)Balance Sheet

Debit		Credit	
<u>Items</u>	<u>Amount</u>	<u>Items</u>	<u>Amount</u>
(Fixed Assets)		(Capital)	
Power Transmission Equip- ment	9,707,048.13	Fixed Fund	26,460,409.25
" "	6,330,008.97	Floating Fund	3,678,000.00
" Distributing Equipment	10,366,492.13	Amortization Reserve	1,009,573.15
Vehicles & Carts	313,312.82	Bonus Reserve	136,042.21
Working tools & Supplies	195,393.90	Welfare Outfit Reserve	804,521.41
Employees' Homes	815,092.10	(Liabilities)	
Welfare & Cultural Outfit	12,271.10	Accounts Payable	45,000.00
		Unpaid Debts	7,703.40
(Floating Assets)			
Stores	8,438,763.57	Advance Receipts	2,298,852.85
Goods to arrive	732,534.93	Money in Custody	765,823.95
Deposit	9,797,415.01	Unpaid Accounts	905,568.85
Cash	131,580.11	Temporary Receipts	2,334,799.80
(Claims)		Advance Receipts for	
Accounts Receivable	12,936,804.56	Contract works	3,514,252.96
Unsettled Claims	2,040,599.04	(Special Debts)	
Advance Payments	639,285.20	Legal Deduction from	
Guarantee Money	150,124.00	unpaid Profit	291,036.95
Temporary Loans	331,891.38	Unpaid-in Floating Fund	15,302,516.22
Uncollected Money	3,187,738.67		
Temporary Payments	867,108.07	Debts for Goods in cu- stody	5,552.37
Advances for Contract Works	1,797,939.87	(Internal Account)	
Control Bureau Accounts (Special Property)	6,352,023.59	Adjustment of Estimated Accounts	280,414.00
Advance Payment Trans- action Tax	150,000.00	(Profit)	
Legal Deduction from Profit of Previous Period	332,012.60	Profit brought forward from Previous Period	16,064.115.11
Goods in Custody	5,552.37	(Internal Account)	
(Internal Account)		Head Office & Agencies Accounts	4,877,868.70
Head Office & Agencies Accounts	110,222.94	(Profit)	
Welfare Loans		Profit of Current period	7,429,956.70
Investment in Welfare Outfit	619,280.08	Head Office & Agencies Account	4,877,868.70
Construction Balance Account	1,172,057.18	Profit	7,429.956.70
(Loss)		(Profit of Current Period)	
Loss brought forward from Previous Period	8,674,455.03		
Loss of Current Period			
Total	86,207,007.35		86,207,007.35

From 1 July to 31 August 1950  
Power Distributing Dept,  
Pyöngan-namdo

Statement of Profit and Loss

Disbursements of		Receipts	
<u>Items</u>	<u>Amount</u>	<u>Items</u>	<u>Amount</u>
General Expenses of		Electric Light Rates	5,778,119.92
Power Distribution	1,547,830.27	Electric Power Rates	8,137,646.70
Repairs of Power			
Distribution	562,441.62	Electric Heat Rates	880,508.00
Adjustment of Power		Special Power Rates	919,412.09
Rates	4,000,000.00	Additional Power Rates	151,193.95
Transaction Tax	796,596.35	Sundry Profit from	
Deduction from Profit	1,731,916.15	Supplies	186,735.00
Fine	438.20	Interest Receipts	41,500.00
Investigating Expenses			
for wasteful use	29,619.48	Miscellaneous Profit	1.65
Profit of Current		Profit from Property	
Period	7,429,956.17	Sales	3,680.13
		Total	16,098,798.24
Total	16,098,798.24		

10

Actual Condition  
of  
The Kangsø Electric Machine Shop

Board of Maintenance  
Kangs8 Electric Machine Shop  
CHO Tae-gwan, Chairman  
KIM Chang-chip, Paymaster.  
YI Yong-ki, Operation Chief.

Balance Sheet

As of 30 June 1950

<u>Items</u>	<u>Amount</u>	<u>Items</u>	<u>Amount</u>
(Fixed Assets)	1,268,689,800.01	Capital	223,896,662.84
Operational Fixed Assets	126,868,980.01	Capital	223,896,662.84
Factory Lot Chief		Fixed Fund	127,096,662.84
Mine-levels	1,264,884.60	Floating Fund	96,800,000.00
Factory Buildings	57,266,446.57	Reserve	3,689,780.24
Apartments	18,887,952.00	Profit Reserve	
Welfare Facilities	482,511.15	Reserve for Amorti-	3,594,080.24
Structures	13,670,047.07	zation	
Tracks Machine		Managers Fund Account	
Apparatus	30,002,001.48	Reserve ofc Fund	95,700.00
Transportation Ways		Welfare Outfit Fund	
ships	315,679.36	Loans Payable	15,026,000.00
Vehicles	334,264.75	Bond Loans	3,300,000.00
Tools & Equipment	4,645,193.03	Short-term Loans	11,726,000.00
Spare Machines		(Liabilities)	99,033,730.23
Idle Fixed Assets		Debt on Purchase	37,278,443.79
Property for Redemption		Debts of After pay-	26,158,352.77
Internal Construction	2,837,536.95	ment Unpaid Debt	11,120,091.02
Construction &			
Expansion	2,379,042.75	Short-term Debts	19,613,255.35
Repairs		Advance	8,724,286.47
Stores		Money in Custody	338,481.85
Special Deposit for		Unpaid Accounts	
Legal Amortization	1,458,494.00	unpaid Expenses	
(Floating Assets)	137,561,849.76	Advance Collection	
Material Property	42,946,258.47	temporary Receipts	3,909,422.78
Raw Materials	19,753,787.01	Control Bureau	
Fuel	6,992,121.37	account	38,192,813.67
Packing Materials		Compensation Money	40,294.64
Sundry Stores	15,362,301.64	Special Debt Unpaid	16,509,012.89
Unfinished Goods	22,567,441.03	money for Amortization	
Half-finished Goods	16,083,453.70	Unpaid Transaction Tax	1,369,950.48
Circulating Property	43,767,416.03	Unpaid Deduction from	
Finished Goods	39,794,205.37	Profit	1,277,891.45
Bad Products	577,417.02	Unpaid Surplus Profit	597,380.00
By-Products		Advance Receipts from	
Operation Fragments	896,780.91	Bond	2,261,497.35
Bungles	818,753.48	Unpaid Floating Fund	5,500,293.61
Goods for shipment	1,680,259.25	Debts on goods in	
Currency Property	848,175.26	custody	2,000.00
Bank Deposits	837,330.10	Internal Accounts	7,940,967.54
Cash	10,845.16	Head Office & Agencies	
Claims	74,927,892.41	Accounts Construction	
Claim by Sales	61,430,568.99	Balance Account Adjust-	
Claim by Exchange	39,261,111.53	ment of Estimated	
Uncollected Claims	22,169,457.46	Accounts	7,940,967.54
Sport term Claims	12,490,948.89	Profits	14,926,230.59
Letters of Credit		Profit brought forward	
Issued Profit of		from Previous Period	14,926,230.59
Previous Period	6,131,776.70	Profit of Current Period	
Guaranty-Money	1,210,292.70		
Accommodation-money	4,262,479.21		
Accounts Receivable	187,388.04		
Prepaid Expenses	699,012.24		
Uncollected Profit			
temporary payments	1,006,374.53		
control bureau account			
Special Property	24,727,937.16		
Advanced Transaction			
Tax	396,310.00		

<u>Items</u>	<u>Amount</u>	<u>Items</u>	<u>Amounts</u>
Advance Deduction from Profit	2,456,540.62		
Adjustment money for Uncollected Price	850,179.69		
Uncollected Floating Fund	21,024,906.85		
Goods in Custody			
Internal Account	2,030,170.57		
Head Office & Agencies Accounts			
Welfare Outfit Account			
Welfare Accommodation Fund	1,896,653.79		
Investment for Welfare Outfit Fund			
Construction balance	133,516.78		
Loss	12,068,017.47		
Loss brought forward from previous period			
Loss of Current period	12,068,017.47		
<b>Total</b>	<b>381,022,384.33</b>	<b>Total</b>	<b>381,022,384.33</b>
Idle special property		Special Fund	
Idle Raw Materials			
Idle Stores			
Idle Finished goods			
Special claims			
Deposit			
<b>Total</b>		<b>Total</b>	
Basic Holding of Floating property		Holding of Raw materials	
Raw Materials & Stores		Estimated Fund for Basic Construction	
Unfinished & Half-Finished goods		Aggregate of Delivered Amounts for Basic Construction	
Finished Goods		Estimated Amount for Amortization	
currency Property		Aggregate of Amortization	

Statement of Profit and Loss  
(From 1 April to 30 June 1950)

Board of Maintenance  
Kangsŏ Electric Machine  
Shop.  
CHO Tae-gwan, chairman.  
KIM Chang-chip, Paymaster  
YI Yong-ki, operation  
chief.

<u>Kind</u>	<u>Loss</u>	<u>Amount</u>	<u>Profit</u>	<u>Amount</u>
Profit & Loss in Production	Unfinished Goods brought forward from Previous Period	22,068,991.87		All Production Cost in Plan 103,631,680.95
	Raw Material cost	120,946,147.79		Half Finished Goods
	Labor cost	6,630,850.07		Bad Products
	Expenditure	4,366,409.20		By-Products
	Amortization cost	6,896,000.00		Operation Tragnents
	Indirect Cost in control & Sales			Bungles
				Unfinished Goods by End of Period
				42,028,294.01
				Deductgion 589,985.02
				Production Loss 14,643,428.45
	Total (Production Profit)			
	Total	160,898,398.93		
Profit & Loss in Sales	Sales Cost in plan	56,409,386.46		Receipt from Sales 70,297,091.20
	Half Finished goods			Finished Goods
	Bad Products			Half Finished goods.
	By-Products			Bad Products
	Operation Fragments			By-Products
	Direct Expenses for Sales			Operation Fragments
	Payment for price Adjustment	1,776,087.81		Bungles
	Transaction Tax	6,672,126.92		Grant for Price adjustment 310,495.39
	Total (Sales Profit)	5,749,885.72		
	Total	70,607,586.91	Total	70,607,586.91
Profit & Loss in Undertaking	Deduction from Profit Payment of Surplus Profit Bonus	5,205,678.92		Production Project sales Profit 5,749,985.72
	Bonus			Balance from Estimated Allotment
	Balance from Estimated allotment	XX 8,957.89		Interest Receivable 299,041.80
	Interest payable	XX 748,671.53		Damages for Breach of Contract
	Fine	25,619.00		Miscellaneous Profit 12.89
	Damages for Breach of Contract	343,739.06		Undertaking Loss 14,927,123.89
	Misallaneous Losses	19.15		
	Production Loss (Undertaking Profit)	14,643,428.45		
	Total	20,976,164.30	Total	20,971,114.30



<u>Kind</u>	<u>Loss</u>	<u>Amount</u>	<u>Profit</u>	<u>Amount</u>
Appraised Value of Property			Undertaking Profit	
Amount of Property Sales			Profit in Appraisal of Property	2,859,106.42
Loss by Accidents			Profit in Sales of Property	
Special Depreciation			Loss of Current Period	12,068,017.47
Undertaking Loss	14,927,123.89			
(Profit of current Period)				
Total		14,927,123.89	Total	14,927,123.89

Cash Balance as of 15 November 1950 124,490.67 W8n

The Board of Maintenance,  
 Kangs8 Electric Machine Shop  
 CHO Tae-gwan, Chairman  
 KIM Ch'ang-chip, Treasurer

Specification of Fixed Property

Land

<u>Kind</u>	<u>Area</u>	<u>Particulars</u>
Farm	111,500 m <sup>2</sup>	Building Lot inside Factory Compound
Miscellaneous forms in Lot	431,347.4 m <sup>2</sup>	"
Miscellaneous Land	3,702.60	Building Lot of Apartments outside Factory Compound
"	2,310.00	Building Lot inside Factory Compound
Forestland	7,365.6	Building Lot of Apartments outside Factory Compound
"	55.1	Building Lot inside Factory Compound
Building Lot	51,480	Building Lot of Mess Hall outside Factory Compound
"	6,600	Building Lot inside Factory Compound
Paddy Field	29,700	"
Farm	82,559	Kitchen Garden of Employees outside Factory Compound
"	166,551	Playground outside Factory Compound
"	837,982.6	Building Lot of Apartment outside Factory Compound
Total	1,732,670	

<u>Specification of Fixed Property</u>				<u>Buildings</u>
<u>Kind</u>	<u>Structure</u>	<u>No. of Hours</u>	<u>Floor Area</u>	<u>Appertaining Field</u>
Miniature Trans- former Factory	Brick Building with Iron Pipe State	1	Pyong 1,221	Electric Machine Section, production Dept.
Working Factory	Brick Bldge Slate Roofed	1	133,330	Working Section, Engineering Dept.
Air Compressor Room	"	1	8,509	Working Section Production Dept.
Casting Factory	Brick Bldg with Iron Pipe Slate	1	1,040,227	Casting Section, Production Dept.
Copper Wire Factory	Iron Pipe Slate Roofed	1	1,073,812	"
Insulator Fact.	Wooden Bldge Slate Roofed	1	7,850	Insulator Section, Production Dept.
Varnish Mfg. Fact.	"	1	128,000	"
Saw Mill	"	1	18,077	Working Section, Construction Dept.
Carpenter's Shop	"	1	1,010	"
Empire Cloths Factory	Wooden Bldg, tile Roofed	1	40	Insulator Section Construction Dept.
"	Wooden Bldge, Slate Roofed	1	79	Repair Section, Engineering Dept.
Gen Mft. Factory	Brick Bldg, Tile Roofed	1	110	Working Section, Construction Dept.
Large Transformer Factory	Ferro-concrete, Slate Roofed	1	1,066.500	
Blacksmith's shop	Wooden Bldge, Slate Roofed	1	59.0	Working Section Engineering Dept
Pump Room	Brick Bldg, Tile Roofed	1	18.0	Repair Section "
"	Wooden Bldg, Tile Roofed	1	38.0	"
Mess Boiler Room	Brick Bldg, Tile Roofed	1	38.0	"
Dormitory Boiler Room	" 2	1	32.0	
Pump Room	Wooden Bldg, Tile Roofed	1	12.0	Repair Section
Locomotive Shed	Steel Reinforcements	1	23.0	Repair Section, Business Dept.
Toilet		4	20.0	

<u>Kind</u>	<u>Structure</u>	<u>No.of Hours</u>	<u>Floor Area</u>	<u>Appertaining Field</u>
Toilet	Steel Reinforcements	1	3	
Public School				
toilet		1	24	
Mess Hall Toilet		1	36	
Substation Toilet		1	1.5	
Dormitory "		5	10	
Office Room	Brick Bldg, Tile Roofed	1	311,514	
Junior Party Office	"	1	65.0	
Trade Union "	Wooden Bldg, tile Roofed	1	31.5	
Repair Section				
Office		1	34.0	
Construction				
Dept Office		1	61.0	
Shipping Bureau				
Office		1	30.8	
Land Transportation				
Bureau Office		1	25.0	
Welfare Bureau				
Office		1	39.0	
Higher Technicians' Training School	Brick Bldg, Tile roofed	1	278.0	
Technicians' Training School	Two Storred wooden Bldg, Tile roofed	1	258.0	
Office Building	Wooden Bldg, tile Roofed	1	6.5	General Affairs Dept.
Guard box				
Guard House	"		34.0	"
Dormitory Toilet	"	2	22.0	"
Office Bldg. "	"	2	2.5	"
Warehouse	"	5	1,000	"
"	"	1	82.5	Building Dept
No.1 Mess Hall				
Storeroom	"	13	26	Working Section, Construction Dept.
No. 2 "	"	15	30	General Affairs Dept.
Mess Hall No.1				
Storeroom	"	1	36	"
Storeroom	"	1	70	"
"	"	1	10	"
"	"	1	40	Welfare Bureau
Barber shop Storeroom	"	1	7.5	"

<u>Kind</u>	<u>Structure</u>	<u>No. of Hours</u>	<u>Floor Area</u>	<u>Appertaining F.</u>
Public School Warehouse	Wooden Bldg, Tile Roofed	1	44.0	General Affairs Dept.
Oil Warehouse	"	1	25.0	Business Dept
Substation Warehouse	"	1	11.0	Engineering Dept.
No.2 Mess Hall Storeroom	"	1	14.0	General Affairs Dept
No.1 Storeroom	Brick Bldg, Tile Roofed	13	364	"
No.2 "	Wooden Bldg, " "	15	67.5	"
No.3 Storeroom	Wooden Bldg, " "	7	224	"
No.4 "	"	12	648	"
No.5 "	"	12	240	"
No.6 "	Brick Bldg, "	12	264	"
No.7 "	Wooden Bldg, "	36	432.0	"
No.8 "	"	1	83.0	"
No.9 "	"	24	1997.0	"
No.10 "	"	6	252.0	"
No.11 "	"	3	157.5	"
No.12 "	" Slate Roofed	2	105.0	"
Office Room	Wooden Bldg, tile roofed	3	115.0	"
"	Ferro-Concrete, tile roofed	10	35.0	"
"	Wooden Bldg, tile roofed	1	750.0	"
"	"	1	30.0	"
Construction Office	"	1	33.0	"
"	"	1	17.5	"
"	"	1	38.0	"
"	"	1	26.0	"
"	Wooden Bldg, Slate roofed	1	15.0	"
"	Wooden bldg, tile roofed	2	48.0	"
Bathroom	"	1	70.4	"
Dormitory	Brick bldg, tile roofed	1	570.0	"
"	Brick bldg, Zinc roofed	1	28.0	"
Bathroom	wooden bldg, tile roofed	1	81.8	Construction Dept
Dormitory	"	1	40.0	General Affairs
Mess Hall	" (two storied)	1	27.6	"

<u>Kind</u>	<u>Structure</u>	<u>No. of Hours</u>	<u>Floor Area</u>	<u>Appertaining F.</u>
People's Youths Hall	Wooden Bldg, tile roofed	1	25.0	General Affairs Dept.
People's Youths Pro-paganda Hall	" (two storied)	1	258	"
Hospital	"	2	90	"
"	"	1	28	"
Public School	"	1	185.3	"
Public School	"	1	94.2	"
No.1 Barbershop	"	1	27.5	Welfare work Bureau
No.2 Barbershop	Wooden Bldg, Tile roofed	1	4	"
Booth	"	1	44	General Affairs Dept.
Welfare Mess Hall	"	1	18.0	Welfare work Bureau
Welfare Tailor shop	"	1	12.0	General Affairs Dept.
Dormitory Washroom	"	1	60.0	Business Dept
Warehouse Office	"	1	12.0	"
People's Youth Office	"	1	25.0	General Affairs Dept
Substation Office	"	1	81.0	Engineering Dept

Specification of Fixed Property Structures

<u>Kind</u>	<u>Structure</u>	<u>Type</u>	<u>Extension Area</u>	<u>Use</u>	<u>Appertaining Field</u>
Railroad			10,000 m	Transportation	
Reservoir	Ferro-Concrete Pool		25mx6x1.5m	Water Distribution	
Distributing Reservoir	"		Depth 10 m Diameter 7m	Drinking	Engineering Dept
Settling Basin	"		30mx40mx3m	Sea water Precipitation	
"	"		30mx40mx3m	"	
Telegraph Poles	Wooden Poles		87	Power Distribution inside Factory	"
"	"		110	Power Distribution for Mess Hall	"
"	"		71	Communication Lines	"

<u>Kind</u>	<u>Structure</u>	<u>Type</u>	<u>Extension</u>	<u>Area</u>	<u>Use</u>	<u>Appertaining Field</u>
Iron Tower	Wooden Pools				Power distri- bution for sub- station	Engineering dept
Water works	Iron Pipe		6,700m		Water Supply to factory & Homes	"
Well	Ferro-concrete	Large	Diameter 5m		Factory & Homes	"
		type	Depth 10m		"(for waterworks)	
Well	Ferro-concrete	medium	Diameter 15m		Water supply to	Engineering
		size	Depth 5m		Factory homes	Dept
Lamp Tube			Perimeter 6m	5	Blast furnace	
			Hight 30m			
"			Perimeter 6m	2	Reverberatory	
			Hight 35m		Furnace	
"			Perimeter 5m		Dormitory	
			Height 25m		Insulator Fact.	
Bridge			1			
Air Pipe			one set			
Sewer			5,000m			
Road			5,600m			
Distributing Wire inside Factory	Substation Factories	Overhead Wire	Copper Wsre 2,839m		3.3KV	
Dormitory Distribut- ing Ware	" Mess Halls	"	" 4,052m		"	
Telephone Wire	Communica- tion line in- side & out- side factory	"	Aluminum Wire 3,105m			

## Specification of Fixed Property

## Ships

<u>Name</u>	<u>Type</u>	<u>Standard Size</u>	<u>Shipbuilder</u>
Motor 50HP	Propeller	Breadth Depth Length 3.15m x 1.08m x 13.2m	Hiroshima shipyard

Report of Fixed Property      Engineering section

<u>Name of Machines</u>	<u>Standard Size</u>	<u>Unit</u>	<u>Quantity</u>	<u>Use</u>	<u>Remarks</u>
Lathe	6'		7		
"	8'		7		
"	12'		1		
"	15'		1		
Puppet Lathe	6'		1		
Cutting Machine	6'		1		
Shaving Machine	8"		1		
"Hopping"	24"		1		
Milling Machine	3"		1		
"Puppena"	6'		1		
Shaver	24"		1		
"	22"		1		
"	18"		1		
Bolban	14"		1		
"	18"		2		
"Radial" Bolban			1		
Electric Motor	20HP		2		
"	15HP		1		
Grinder			2		
Air Compresssr	100HP		1		
Air Hammer	1/4 "		1		
"	1/8 "		1		
"	1 "		1		
Blower			3		
Bolban	25"		1		
Fixed Switch	3x6"		1		

Power Section

1. Transformer	66/11 KV 19 5,000KVA	2	Reception Substation Equipment of electri- city
2. "	66/3.3 KV 19 2,000 KVA	3	"
3. "	11/3.3 KV 1,000 KVA	4	Power Distri- bution inside Factory
4. Meter-Trans- former	69KV 3 $\phi$ VTR-260	1	Installation finished
5. "	66KV 1 $\phi$ OGL-C	2	"
6. Oil Switch	69KV SK 280-503	1	"
7. "	64KV SP-1008	1	"
8. "	66KV Insulator Type	1	"
9. "	1.15 KV SKR 268-253	1	"
10. "	33KV SKR 268-10A	5	"



<u>Name of Machines</u>	<u>Standard size</u>	<u>Unit</u>	<u>Quantity</u>	<u>Use</u>	<u>Remarks</u>
11. Meter transformer	69KV 49-260		4	Installation finished	One spare stock
12. Meter-transformer	69KV 6 W-L		2	"	"
13. Meter-transformer	66KV T 134MT-8		1	"	One spare stock (needs repair)
14. Mercury-Vapor Rectifier	H38-0-20 200P		1	"	for Storage Battery
15. Storage Battery			54	"	for Power Source
16. 66KV Power Receiver			1	"	
17. 3.3KV Switchboard			1	"	
18. 11KV Switchboard			1	"	
19. 3.3KV Switchboard			5	"	
20. Transformer	3.3/22KV 50 KVA		2	"	Substation Equipment
21. "	3.3/22KV 20 KVA		2	"	"
22. Telephone Switchboard	Magnetic type		1		for Switchboard room one office rooms.
23. Telephone Set	Table telephone		15	"	"
24. "	Wall fixture		9	"	"
25. Transformer	3.314/2200 75 KVA		4	"	for Factory power and Lighting
26. "	11KVA		3	"	"
27. "	15KVA		2	"	"
28. "	20KVA		4	"	"
29. "	30KVA		6	"	"
30. "	40KVA		2	"	"
31. "	50KVA		13	"	"
32. "	75KVA		2	"	"
33. "	100KVA		1	"	"
34. "	300KVA		2	"	"
35. "	3.3KV/200-110 25KVA		2	"	for Employees Homes & Pump Rooms
36. "	10KVA		11	"	"
37. "	15KVA		7	"	"
38. "	22KVA		7	"	"

<u>Name of Machines</u>	<u>Standard size</u>	<u>Unit</u>	<u>Quantity</u>	<u>Use</u>	<u>Remarks</u>
39. Transformer	3.3KVx220-110V 30 KVA		4	Installation finished	for Employees homes & pump rooms
40. "	50 KVA		1	"	"
41. "	100 KVA		1	"	"
42. "	150 KVA		1	"	"

#### Report of Fixed Property Casting Section

'Padial' Bolban		1
Electric Motor	10HP	5
"	70HP	1
"	30HP	2
"	15HP	2
Bolban		1
Blower	30HP	3
Grusher	'Hupet' type	1
Drying Oven		4
Welding Machine		1
Crane	25 "	1
"	5 "	3
Electric Furnace	3 "	1
Reverberatory		
Furnace	2 "	3
Drying Oven	Miniature type	2
Cupola	"	2

#### Report of Fixed Property Tools Section

Table Bolban	Miniature type	3
Power Press	30 "	3
Hand Press		7
"Bullchange" Press		2
Notching Press		10
Iron Plate cutter	6 "	1
"	3 "	1
Milling Machine		3
Marble cutter		16
" Grirder		2
Welding Machine		1
Electric Motor	30HP	4
"	25HP	1
"	10HP	8

Report of Fixed Property

## Electric Machines Section

<u>Name of Machine</u>	<u>Standard size</u>	<u>Unit</u>	<u>Quantity</u>	<u>Use</u>	<u>Remarks</u>
Oil Press	500 #		1		
Electric Motor	5 HP		5		
"	3 HP		1		
"	10 HP		2		
"	20 HP		3		
Shaving Bolban			1		
"Padial" Bolban			1		
Iron Plate Cutter	6'		1		
Notching Press	38'		5		
Front Bolban	6'		2		
Lathe	6'		1		
Press			2		
Blower			1		
Grinder			1		
Power Press			3		
Rotary Cutter of					
Iron Plate			1		
Varnish Painting Tank			1		
Welding Machine			1		
Crane	50 #		1		
"	30 "		1		for installing electric motors

Report of Fixed Property

## Engineering Section

Lathe	6'	4	Installation completed
Bolban		1	"
Shaver	12"	1	"
Iron Plate Cutter		1	"
Steam Boiler	6x30	1	"
"	43 #	1	"
"	Tobacco Pipe type	1	"
"	Asahi type	1	"
Water Pump	6" 20 KW	2	"
"	15 HP	2	"
"	10 HP	2	"
Water Pump	15 HP	1	"
"	25 HP	1	"
"	30 HP	1	"
"	15 HP	1	"
"	10 HP	1	"
"	7.5HP	1	"
"	10 HP	1	"
"	20 HP	1	"
"	2 HP	1	"
"	3 HP	1	"
Electric Motor	5 HP	1	"
Turbine Pump	25 HP	1	"
Blower	15 HP	1	"
"	W HP	1	"
"	7.5 HP	1	"
Electric Motor	20 HP	1	"
"	10 HP	1	"
Welding Machine	Electricity	1	"
"	Oxygen	1	"
Lathe	12'	1	"
"	5'	1	"

Name of Machine	Standard size	Unit	Quantity	Use	Remarks
Electric Hammer			1	Installation completed	
Grander			1	"	
Vacuum Pump			1	"	
Varnish Making Machine		set	1	"	
Sawing Machine			1	"	
Planing Machine			1	"	
Boring machine	for lumbering		1	"	
Nail making machine	4"		1	"	

Report of Fixed Property

## Electric Section

Low Voltage Distri-	2500/150A		2	Installation completed	
buting Electrode			2	"	
Electric Motor	10 HP		1	"	
"	5 HP		4	"	
"	20 HP		1	"	
"	30 HP		1	"	
Vacuum Pump			2	"	
Tank			1	"	
Transformer coiling machine			2	"	
Iron Core Compressor			6	"	
Power Press	30 "		2	"	
Hupington Press			1	"	
Iron Plate Cutter	6'		4	"	
"	3'		2	"	for installing electric motor
Crane	3 "		2	"	
Bolban			3	"	
Welding Machine	Electric		2	"	
Blade Grinder			6	"	
Shaver			1	"	
Lathe	12'		2	"	
Lathe	8'		9	"	
"	6'				

Report of Fixed Property Rolling Section

Electric Motor	500 HP		2	for crudely finished rolling	
Power Switchboard			2	500 HP	
Starting Control	3.3/200A	set	2	"	
Oil Breaker			2	"	
Single Phase-transformer	3.3/105.250A		1	OCB Control	
Electric Motor for Oil Pump	5 HP		1	Oil Transportation	
Decelerator	2:1		1	for crude rolling	
Flashing Wheel			1	"	
Cambers			1	"	
Rolling machine	350"		1	"	
"	80"		1	"	
Cambers	80"		1	for Finished rolling	
Charging machine	'Pako' type		1	for Heating Furnace	
Electrid Motor	50HP		1	"	
Resistor		set	1	"	
Heating Furnace	Series type		1		
Blower	5 HP		1		
Windlass of finished goods			2		

<u>Name of Machine</u>	<u>Standard size</u>	<u>Unit</u>	<u>Quantity</u>	<u>Use</u>	<u>Remarks</u>
Thin Plate Roller	400 $\phi$ /	set	1	for rolling thin plates	
Reduction Gear	100 HP		1	"	
Electric Motor	100 HP		1	"	
Resistor		set	1	"	
Heating Furnace	Intermittent system		1	"	
Blower			1	"	
Hot Sealing machine			1		
Electric Motor	30 HP		1	for cutting machine being used	
Roller		drum	29		
Electric Motor	30 HP		6	"	
Decelerator			6	"	
Distributor			6	"	
Roller	for horizontal rolling		10	"	
Switch			10	"	
Electric Motor	30 HP		7	"	
"	40 HP		1	"	
"	20 HP		1	"	
Decelerator			1	"	
Outgoing machine			1	"	
Electric Motor	5 HP		1	"	
Crane	10 $\Phi$		1	"	Equipping Electric motor
"	3 "		7	"	
Telephone Set			1	"	
Blower			1	"	

Report of Fixed Property

## Inspection Section

Field Regulator	medium type		2	being used
Distributor	3.5/50A		2	"
Meter-transformer	40VA 3.3/110		7	"
"	35 100/5A		2	"
Single phase conductor Voltage Regulator	25 KVA		3	"
Test Desk	for Low Voltage	set	7	"
Electromagnetic switch	220 P			
"	60 A		4	"
"	100A		6	"
Storage Battery	200V			
"	100 Kg		20	"
"	150 "		1	"
Automatic Conductor Voltage Regulator	40 KVA		1	"
Changeover Dis-connecting Switch	3.3/150A		1	"
Switchboard	for Low Voltage	set	1	unusable
Electric Motor	30 HP		3	being used
"	15 HP		1	"
Distributor	200V 150A		2	"
Direct current motor	9 KVA		3	"
Insulator	60 KVA		12	"
Oil Test Machine	5 KVA 250 KV		1	"

Transformer	650/267V	3	being used
for "Test	10 KVA		
Transformer	30 KVA	1	"
"	3 KVA	1	"
"	4 KVA	1	"

Report of Fixed Property (Meters) 14 November 1950

No.	Articles	Type	Measurement	Direct current alternative "	Quantity	Re- marks
1	Voltmeter	DPV	150/300V	A.C. & P.C.	1	
2	"	EP-2	0-300V	"	1	
3	"	155	0-150V	A.C.	2	
4	Vacuum Voltmeter	B.R.C-75	0-150V	A.C.	2	
5	Voltmeter	MP-1	0-2A	D.C.	1	
6	"	SP-C	0-25A	A.C.	1	
7	"	D.P.A.	25/50A	AC&DC	1	
8	"	370	25/5A	"	1	
9	"	K-370	0-5A	A-C	1	
10	"	155	0-5A	"	1	
11	Insulation Re- sistance meter	L-5	4-2000 M <sup>2</sup>	100V	1	

Survey of Operation Conditions

1. Prior to 30 June 1950

(1) Labor. In carrying out the basic plan by this factory, a shortage of material was keenly felt. Moreover, due to its unfavorable geographic and social conditions, not only the labor distribution but the daily attendance of planned laborers was found insufficient. The following table will prove this fact.

Month	Monthly Planned Laborers	Monthly Registered Laborers	Average month. Registered Laborers	Registered Laboers at month-end	Monthly at- tendance work- ing hours
January	5,754	39,383	1,575	1,521	37,387
February	11,754	32,750	1,573	1,503	34,575
March	1,848	40,586	1,503	1,435	37,933
April	1,848	45,083	1,501	1,501	42,435
May	1,960	47,665	1,538	1,548	45,285
June	2,021	49,039	1,634	1,654	46,678

]

Labor was organized with working units (brigades) as as the basic nucleus of production, dividing workers under the control of unit heads and higher bosses at each workshop for combined production.

(2) The working structure was formed with five sections as follows (prior to April 1950).

Production Department - Electric Machine Section

Casting Section

Wiring Section

Insulating Section

Tools Section

Early in April, this structure was changed. They abolished the production Department, and started new operation at each workshop as an independent unit. The table of the new structure is as follows:

Chief Engineer - Major Workshop

Minor Workshop

Casting Workshop

Engineering Workshop

Rolling Workshop

Wiring Workshop

Insulating Workshop

Tools workshop

Industrial Division

### (3) Production

a. Electric motors and ~~TRANSFORMERS~~ Transformers.

These are chief products of this factory. The original plan was to produce an average 400 transformers and 150 electric motors per month. But because of a very limited arrival of silicon steel plate, the chief raw material, during the first quarter period with much loss of iron in this imported article, there was no production of transformers and electric motors. During the second quarter of the year, however, comparatively large shipments of silicon steel plate arrived though falling under its planned

quantity. But the production of electric motor was stopped due to the trouble with the power press purch, and a new goal was set up to produce more transformers. As no electric copper arrived, they tried to make electric wires with the solution of scrap copper, but the supply of the first and second wires of transformers was delayed, they failed to accomplish their monthly plan.

b. Oil Breaker

The original plan was an average output of 100 per month. There was some stock of phosphor]bronze plate, but since no copper bars and wires arrived they had to stop production of oil breakers.

c. Resistor

The original plan was an average output of 80 per month. But the production of transformers, electric motor cases, other machine repairs, and castings was more urgently needed, so they produced no resistor,

d. Switches

Due to short capacity of marble cutters, the accomplishment of the original production plan was infeasible. But the production was continued as the finished articles were turned out with the already cut materials.

e. Uncoated copper Wire and Two Section Electric Wire.

Due to interrupted arrival of electric copper, no continual operation of copper rolling was possible. An attempt was made to promote wire production with collected scrap copper. But due to bad quality of copper, more than 15 percent of the rolled copper was condemned as bad products.

The two section electric wire was produced while the wires for transformer and electric motor were being reproduced, but due to lack of uncoated copper wire



this production was very much limited.

f. Other Products

To produce four section wire and stranded cable, they created a new device and produced some experimental samples of these articles during June.

2. Future Plan

With the readjustment of the evacuated machines, more iron nails, kettles, and farm implements will be produced. At the same time, the already produced electric motors and transformers will be repaired.

(Production Division)

Survey of Actual Production (13 November 1950)

Articles	Standard Specification	Unit	Production in 1st Quarter Year	Production in 2nd Quarter Year	Average Monthly Production	Remarks
1. Electric Motor	5 HP		4	109	18.5	
2. "	10 HP		24	165	31.5	
3. "	20 HP		-	7	1.17	
4. "	30 HP		-	-	-	
5. "	50 HP		-	-	-	
6. Transformer	5 KVA		-	119	19.8	
7. "	10 "		-	166	27.7	
8. "	20 "		42	184	37.7	
9. "	30 "		11	129	23.0	
10. "	50 "		-	47	8	
11. Transformer for meter	22 KV		-	-	-	
12. "	3.3.KV		108	-	19.7	
<del>XXXXXX</del>	40 VA					
13. Welder	200V 200A		151	61	35.3	
14. Oil Cutter	3.3 KV 200A		-	--	-	
15. "	3.3KV 400A		-	-	-	
16. Resistor	20 HP		-	-	-	
17. "	30 HP		-	19	3.1	
18. "	50 HP		-	48	8	
19. Copper Plate	3-m/m	⌘	-	-	-	
20. Electric-motor shaft		"	28.7	23.4	8.7	
21. Transformer Box		"	73.5	86.7	26.7	
22. Micanite			10.288	12.309	3.766	
23. Empire cloth		m	3.3408	5.0896	1.485	
24. Varnish	Black	⌘	-	--	-	
25. "	Raddish-Yellow	"	2.0	11.0	2.17	
26. Uncoated Copper wire	1 m/m	"	0.2	1.4	0.283	
27. "	1.2 m/m	"	-	0.3	0.05	
28. "	1.35 m/m	"	1.1	3.1	0.7	
29. "	1.6 m/m	"	5.4	1.8	1.2	
30. "	1.8 m/m	"	6.0	3.7	1.11	

Articles	Standard Specifi- cation	Unit	Production in 1st Qu- arter Year	Production in 2nd Qu- arter Year	Average Monthly Production	Remarks
31. Uncoated Copper wire	20 m/m	£	3.5	10.7	2.37	
32. "	2.3 m/m	"	2.6	11.3	2.31	
33. "	2.6 m/m	"	25.1	57.1	13.7	
34. "	2.9 m/m	"	-	-	-	
35. "	3.2 m/m	"	39.7	64.1	17.3	
36. "	4.0 m/m	"	9.7	28.1	6.3	
37. "	5.0 m/m	"	69.4	34.5	17.3	

No. Articles	Standard specifi- cation	Unit	1st Qu- arter Year	2nd Quarter Year	Average Monthly Production	Remarks
38. Uncoated copper wire	Square wire	£	16.6	11.2	4.63	
39. "	7/2.6 m/m	"	16.4	31.2	7.96	
40. "	7/2.0 m/m	"	-	5.9	0.98	
41. Double cot- ton covered wire	1.0 m/m	"	0.3	1.2	0.25	
42. "	1.35 m/m	"	0.4	2.5	0.48	
43. "	1.6 m/m	"	2.8	0.9	0.62	
44. "	1.8 m/m	"	3.0	2.3	0.88	
45. "	2.0 m/m	"	-	-	-	
46. "	2.3 m/m	"	2.3	5.4	1.3	
47. "	2.6 m/m	"	0.1	0.9	0.17	
48. "	2.9 "	"	-	-	-	
49. "	Square	"	10.6	11.4	3.7	
50. "	1.4 m/m	"	0.4	0.3	0.117	
51. Uncoated cop- per wire	6 m/m	"	16.6	-	3.77	
52. Two Section Wire	1.6 m/m	"	1.1	-	0.183	
53. "	1.8 m/m	"	-	-	-	
54. "	2.0 m/m	"	0.6	7.5	1.35	
55. "	2.6 m/m	"	4.6	10.8	2.57	
56. "	3.2 m/m	"	33.6	-	5.6	
57. "	4.0 m/m	"	2.9	8.1	1.5	
58. "	5 m/m	"	48.9	20.8	11.62	
59. "	7/2.6 m/m	"	-	-	-	
60. Four Section wire	2.6 m/m	"	-	13.9	.232	
61. "	7/2.0 m/m	"	-	-	-	
62. Steel Bar	19 m/m	"	146.7	382.3	88.07	
63. "	22 m/m	"	25	-	4.17	
64. "	25 "	"	61.8	394.3	76.02	
65. Bipolar Switch	5.0 A	"	1.860	3.479	89.0	
66. "	100A	"	1.833	1.887	620	
67. The Pole Switch	50A	"	1.078	1.411	415	
68. "	100A	"	48	164	35	
69. "	200A	"	-	-	-	
70. Plate Fuse	20A	"	368.000	64.000	12.000	
71. "	50A	"	164.000	317.000	93.500	
72. "	100A	"	87.200	-	14.530	
73. "	200A	"	185.200	-	30.870	
74. Thread Fuse	3A	Reel	-	-	-	
75. "	5A	"	-	131	21.8	
76. "	10A	"	-	-	-	
77. "	15A	"	20	-	3.33	
78. "	20A	"	"	-	-	
79. "Bisu"			212.015	78.855	48.480	
80. Marble			3.755	6.452	1.701	
81. Copper plate	03-0.5 m/m	£	0.6	-	0.1	

<u>No. Articles</u>	<u>Standard Specifi- cation</u>	<u>Unit</u>	<u>1st Qu- arter Year</u>	<u>2nd Quarter Year</u>	<u>Average Monthly Production</u>	<u>Remarks</u>
82. Copper Plate	0.5 m/m	\$	20.9	-	3.5	
83. Uncoated Copper wire	1.5 m/m	"	16.6	-	2.77	
84. Disconnect- ing Switch			1,013	69	180	
85. Four Section Wire	1.6m/m	"	-	0.1	0.017	
86. " "	2.0 m/m	"	-	3.2	0.53	
87. Uncoated Electric Wire	1.4 m/m	"	-	1.7	0.28	
88. Double Cotton Covered Wire	1.2 m/m	"	-	0.1	0.117	

## Post Bill

Chairman (CHO Tae-kwan)  
 Vice Chairman (PAK Sil-t'aek)  
 Private Secretary (KIM Chae-sin)

## (1) Executive Division (Director)

Personnel Section (PAK Hong-kyu, Chief; 3 clerks.)  
 Housing Section (YI Wŏn-pae, chief; 3 clerks, 5 carpenters,  
 5 laborers)  
 General Affairs Section (YANG Btŏng-ch'il, chief; 3 clerks,  
 15 laborers, 8 cooks).  
 Business Section (O Chun-kwŏn, chief; 3 clerks, 5 porters,  
 8 laborers)  
 Traffic Section (YI Tae-hwa, chief; 15 clerks, 10 laborers,  
 25 carpenters, 15 truck drivers)  
 Inspection Section (AN Nam-un, chief; 15 inspectors, 2 outside clerks.)  
 Technical Adviser (KIM Tu-hyŏn)  
 Guards (KIM Pongjnyong, chief guard; 25 first squadmen,  
 25 second squadmen)

## (2) Financial Division (Director)

Supply Section (CHA Pong-si, chief; 5 horse-cart  
 drivers, 35 laborers, 5 clerks).  
 Account Section (YI Pong-ki, Chief; 5 clerks)  
 Food Section (CHOE Ch'an-pin, chief; 2 laborers, 2 clerks).

## (3) Production Division (KIM Yong-nyong, Director)

Clerk - CHA Chông-hak

Casting Section (YI Ho-p'al, chief, 2 clerks 7 wooden moulders,  
8 laboers, 23 castmen, 26 melters)Power Section (CHONG So-pong, chief, 2 clerks, 12 switchmen,  
9 weak electricians, 23 outside wiremen,  
26 inside wiremen, add 5 laboers)Wiring Section (KIM Myông-su, chief, 23 wiremen, 2 clerks,  
20 rubber and clothingmen, 26 laboers)Electric Machine Section (CHOE Chun-ok, chief, 2 clerks,  
25 assemblers, 6 laboers, 25 outside  
electric mechanics, 15 cutters.)Engineering Section (CHOE Châng-ho, chief), 15 cannors,  
21 iron smiths, 2 clerks, 18 outside boilermen  
16 civil engineering workers, 7 laboers)Building and Repair Section (KO Tök-yông, chief, 2 clerks,  
25 lathemen, 15 cannors, 23 outside finishers,  
17 ironsmiths, 12 laborers.

Planning Division (YI Pok-yông, employee)

Technical Division (PYON Su-sông, employee)

Processing Division (KIM Hyông-ok, employee)

Personnel Statistics by Skill

<u>Post</u>	<u>Technicians</u>	<u>Skill-brain Workers</u>	<u>laborers</u>	<u>Office Worker</u>	<u>Total</u>
Executive Division		71	42	20	135
Financial Division			46	14	60
Production Division	5	443	76	15	539
Inspection Division		15		2	17
Guards			50	1	51
Total	5	529	214	54	802

(11)

Actual Conditions

of

The Pyŏngyang Electric Bulb Factory

14 November 1950

Operation Condition (Prior to 25 June 1950)

National Electric Bulb Factory, Pyŏngyang

The National Electric Bulb Factory (under the management of Power Control Bureau, Ministry of Industry) commenced operation on 1 September 1947, and produced about 500 electric bulbs of the Japanese type. Glass bulbs, and glass tubes were also made here by using home materials, while filaments, inducing wires, and other important materials were imported chiefly from South Korea, and were finished by hand.

Due to shortage of exhaust machines, the expansion of this factory was found impossible. There were only 80 employees in the various workshops. In November 1948, the factory moved to a new and larger building where more exhaust machines and hand-control sealing machines were installed. By this time, the number of employees increased to about 300 people.

The fund was operated successfully on the basis of independent accounting system.

Filaments were too scarce to accomplish the planned production, and other attended materials such as phosphoric anhydride, and exhaust rubber were obtained from South Korea through the channel of private traders.

In the technical field, there were only a few skilled workers, and no standard production was guaranteed.

By separate contracts, the factory products were supplied to all plants, mines, consumers' cooperatives, and national commercial organs in North Korea.

The annual production for 1949 was estimated at double amount over previous years or an average daily output for 3,000 electric bulbs. Accordingly a plan was made to mechanize all production process. But contrary to expectation, no automatic manufacturing machines arrived from Dairen, obliging more hand control operation, including the production of tube sealing and opening machines.

Technical education was enforced in order to train skilled workers. The employees got an average monthly salary for 1 1,000 Wŏn, which could hardly procure the bare necessities of their daily life. Ration was rarely given at times when it might serve a propaganda purpose.

On the other hand, severe laws were enforced, finding laborers with unseen chains and depriving them of all freedoms. Unless a party member, every laborer had to comfort himself as rising in the world when he was picked up to attend lectures at a culture propaganda hall.

In March 1949, steam power was replaced by coal and gas in producing stems and seals of electric bulbs, abolishing the complicated fuels such as oxygen, gasoline, and alcohol.

By a government order of 1 December 1948, the Pyŏngyang Electric Machine Shop was closed and all its electric machines, tools, and parts, power press, lathes, bolbars, together with 300 employees were transferred to the new factory where they started production of electric tools and machines, including safety switches, sockets, sealings, consets, attachings, plugs, and gas, etc.

By this time, the factory building was enlarged with the erection of a two-storeyed annex of 100 pyŏng, and a repair shop of 40 pyŏng, in floor areas, in addition to five employees' homes for 80 families. The construction work was completed by the end of 1949, and 700 employees were accommodated in appropriate quarters. However, they experienced great difficulties due to lack of raw materials such as bituminous coal, 'compound', copper plate, and standardized tools. Among other things, no 'compound' was allocated for this factory.

So they made half-finished ceramic articles at the Chuŭl Ceramic Factory, and had them finished for substitute use. But when assembled, they were in bad shape, being out of the standard size.

Partly for bad living conditions of employees, and partly through suppression, about 40 percent of the employees were shaken up, and by expending 3,500,000 Wŏn (debt of the control Bureau), they turned out 700,000 Wŏn worth of finished electric bulbs. Then, from 1950, they put more every into the output of gas-filled electric bulbs, and produced high candle-power bulbs of 100 watts. But due to lack of inducing wires and technology, no normal output was possible, and the 200 watt bulb was only a sample product.

By and by, filaments and inducing wires were imported from the Soviet Union, while a geological survey was conducted in Pyŏnchŏlli, and a plan was drawn to enlarge the factory, but without any actual result.

The life of electric bulbs, made in this factory, lasted only 1,200 hours. The percentages of inferiority were: 40 percent in glass tubes; 20 percent in electric bulbs; 10 percent in other products.

They also drew up a plan to produce exhaust machines, but failed in the actual production, and were obliged to use the existing machines with repairs, while they drew supplies of exhaust rubbers from the Pyŏngyang Special Rubber Factory; other materials through traders; bituminous coal from the Sinyusŏn Coal Mine up to 300 tons per month, and Manchurian coal via the Kyŏmipŏ Iron Mill up to 500 tons per month; copper plates from the Sŏngjin Steel Mill up to 20 tons per month. These copper plates were reshipped to the Kangsŏ Electric Machine Shop, where they were rolled by 0.3 percent to 0.5 percent, while rolling some of these plates with their own rollers.



During the year under review, they began to produce indoor lamps, which were coarse and superfluous. Moreover, due to superabundant staff, and waste of supplies and other expenses the price exceeded the production cost. Thus a finished electric bulb was selling at 60 Wŏn for 700 watts; 50 Wŏn for 60 watts; 40 Wŏn for 40 watts. At the same time, due to bad transportation, the supply of coal was insufficient, which resulted in the delayed supply of all important materials.

In the field of fund, the price of merchandise, sold by contract, amounting to 7,000,000 Wŏn, was uncollected at consumers' cooperatives and commerce control bureaux. Thus the bank debt was added up to 5,000,000 Wŏn.

No fund was loaned by the Government, the debts, including those borrowed from the control Bureau and from others appeared to have exceeded claims. But due to lack of vouchers, no accurate figures are available.

The production plan for May was: 15,000 electric bulbs; 5,000 mine lamps; 32,000 cubic meters of gas; 3,600 tumbler switches; 2,500 attaching plugs; 250,000 electric bulb sockets; 20,000 table lamps.

Then the production plan for June was: 300,000 electric bulbs; 8,000 mine lamps; 60,000 cubic meters of gas; 9,000 sockets; 3,000 receiving sets; 4,000 tumbler switches; 1,000 attaching plugs; 360,000 electric bulb sockets; 11,000 indoor lamps. But the actual production was only about 40 percent of these plans.

The above is a brief report of business operation prior to June.

## (Equipment) Business Report of Electric Bulb Factory

Articles	Type	Unit	Quantity	Remarks
Lathe	Using English 11 foot belt		1	Now usable Building & Repairshop
"	" 8 "		1	" "
"	" 6 "		1	" "
Bolban	12inch belt		1	" "
Shaver	22 inch belt		1	" "
Machine Saw	10 " 20 HP		1	" "
Electric Motor	To run machinery 5 HP		1	" "
"	for grainding (223 ft)		1	" "
Lock Plate	for finishing (5m)		1	" "
Universal Power				
Machine	for finishing		3	" "
Blower	for casting		1	" "
Transmitter	for blacksmith		1	" "
Loading Press	Made in Korea		2	" Metal Plate shop
Machine Apron	"		2	" "
Bar Press	"		3	" "
Power Press	"		3	" "
"Balc'hagi"	"		6	" "
Hand Press	"		1	" "
"Exing" Press	" 7.5 HP		9	" "
Electric Motor	for running press 20 HP		1	" "
"	for running rollers		1	" "
Roller	16 inches		1	" "
Cutter			1	" "
Universal Power				
Machine	5		1	" "
Air Pump			2	Unusable Electric work-shop
"Kwaksan" Pump			1	Unusable "
Sealing Machine	Hand control		14	Out of 14 Machines " 4 need repair
Automatic Sealing				
Machine			1	Unusable "
Automatic Stem				
Machine			1	" "
Air Heater			15	Usable "
Pipe Openig Machine			3	Unusable need repair
Stem Heater			22	Unusable
Electric Bulb				
Text Stand			1	Unusable (broken)

Stores

Articles	Unit	Quantity	Remarks
Soda ash	kg	10	as of 7 November 1950
Copper Plate	"	2.5	"
Crucible		35	"
Saltpeter	"	1	"
Borax	"	1	"
Antimony	"	1.5	"
Lead	"	1	"
Sodium Arsenite	K	100	"
Red Lead Oxide	"	200	"
Tumbler	"	1,500	"
Safety Switch		400	"
Lamp	set	1,000	"
Button	box	20	containing 5,000 buttons in each box
Motor		8	
Oil	drum	7	No separate figures for each kind of oil are available

## Furniture

<u>Articles</u>	<u>Standard Specification</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
Table	for office use		8	Usable
Chair	revolving		8	"
Safe	large and small		2	Unusable (broken)
Stove			5	Usable

## Buildings

<u>Kind</u>	<u>Floor Area</u>	<u>Structure</u>	<u>Use</u>	<u>Remarks</u>
Main Office rooms of each workshop	pyöng 300	Tileroof, cement & brick, too storèed	Usable	Office rooms, metal plate workshop, electric bulb workshop, Windows & all need repair.
Repair Workshop	50	" one storied	"	"
Glass Workshop	188	"	"	"
(1) Warehouse	100	" two storied	"	"
(2) Dormitory	120	" one storied	Unusable	Windows, ceiling & hotfloor, need repair
Dormitory & Warehouse	120	" "	usable	
Bathroom	20	" "	"	
Guardroom	10	"	"	
Gas generating factory	60	Tile roof, red brick, unusable two storied		
Employees' Homes	100 buildings			Including usable & Unusable houses.

## Actual Production

<u>Articles</u>	<u>Standard Specification</u>	<u>Daily production</u>	<u>Remarks</u>
Electric Bulb	40W 60W 100W 80W 20W	3,000 pc's	Pre-War Production
Safety Bulb		100	"
Socket		60	"
Tumber switch		85	"
Carbon lever		4	"
Hanger		40	"
Ketch		20	"
Table Lamp		130 Sets	"
Haaging Lamp		50 "	"

## Five Year Plan of Manchuria (1942)

1.	Dairen	154,000 KW
2.	Yingkow (Newchang)	6,800
3.	Antung	16,000
4.	Hsinking (Changchun)	49,250
5.	Harbin	38,000
6.	Chincow	1,000
7.	Peili	15,000
8.	Fuhsin	160,000
9.	Yŏnhŏ	106,000
10.	Fushun	270,000
11.	Anshan	123,500
12.	Penhsihu	9,700
13.	Amnokkang (The Walu)	260,000
14.	Sungari	420,000
15.	Chingpeihiu	30,000
16.	Other	188,755

Total 1,987.505

q Steam Power 1,177,505  
Water Power 810,000

## Electric Boilers (February 1950)

1.	Hungnam Fertilizer Factory	30,000 KW
2.	Pongung Chemical Factory	30,000
3.	Hungnam Gunpowder Factory	15,000
4.	Hungnam Refinery	5,000
5.	Chŏngsu Chemical Factory	4,000
6.	Sŏngjin Steel Mill Factory	4,000
7.	Kilchu Paper Mill	8,000
8.	Hungnam Laboratory	3,000

Total 99,000

Remarks: Due to breakdown of Coal Boiler at the Aoji

Synthetic Oil Factory, 15,000 KW. was temporarily  
used.

Variation of Demand

<u>Year/Kind</u>		<u>Electric Lamp</u>	<u>Electric Power</u>	<u>Electric Heat</u>
1956	Houses	415,648	6,658	7,350
(End of September	Quantity	1,275,572	542,230	13,731
1946	Houses	503,612	7,144	15,367
(End of December)	Quantity	1,247,240	628,052	21,642
1947	Houses	533,862	9,894	23,937
(End of December)	Quantity	1,260,108	714,886	37,654
1948	Houses	650,693	10,576	11,635
(End of December)	Quantity	1,467,101	798,265	10,387
1949	Houses	660,000	11,000	10,000
(End of December)	Quantity	1,520,000	871,928	9,700
1950	Houses	680,000	10,696	5,000
(August)	Quantity	1,520,000	850,000	5,800 KW

Possible Generation of Electricity and Estimated Burden  
during Dry Season in 1950

1. Reservoir Water available as of 15 January

<u>Reservoir</u>	<u>Waterlevel at Reservoir</u>	<u>Reservoir water available</u>	<u>Reservoir water available</u>	<u>Percentage of 1950 against 1949</u>
	<sup>m</sup>	106m <sup>3</sup>	106m <sup>2</sup>	
Supung	111,720	4,009	3,680.6	109
Changjiangang	10,940	236.7	202.3	117
Puchongang	10,925	91.2	124.5	73
Hochongang	10,560	188.8	177.2	107
Total	-	4,525.7	4,184.6	108

Remarks: The above figures were adapted from the "Electric  
Supply Daily", Power Control Bureau.

2. Estimated Flow

<u>Month</u>	<u>Supung</u>	<u>Changjiangang</u>	<u>Puchongang</u>	<u>Hochongang</u>
January	103.2 M3/sec.	4.9	2.1	5.6
February	71.7	3.6	1.5	4.9
March	292.9	6.4	2.8	7.2
Total	467.8	14.9	6.4	17.7
Aggregate flow	106m <sup>3</sup>	106m <sup>3</sup>	106m <sup>3</sup>	106m <sup>3</sup>
against above total	1212.5	38.7	16.6	45.8
65percent of normal year	788.1	25.1	10.8	29.8
Minimum flow	-	12.7	7.5	12.2
average flow in 1948 & 1949	492.0	39.7	15.5	22.6

Remarks: The above figures show average yearly flows  
from 1925 to 1949.

### 3. Possible power generation by the above flow.

- (1) When the flow from 15 January to 15 April is considered as 65 percent of a normal year.

<u>Particulars</u>	<u>Supung</u>	<u>Changjingang</u>	<u>Puchongang</u>	<u>Hochongang</u>
Reservoir water as of 15 Jan.	106m3 4009	236.7	91.2	188.8
Flow from 15 Jan. to 15 Apr. (65 percent of normal year)	788.1	25.1	10.8	29.8
Possibly freezing water	65.0	13.7	6.0	6.3
Possible power generating water (up to 15 Apr.)	4,741.1	248.1	96.0	212.3
Effective Head	77m	920	1037	933
Efficiency	80 percent	83	80	85
Possible average generation of power	367,000 KW	239,000	99,000	212,000

- Remarks: (1) Considering only two generators working at Supung (60-system) the generated power would be 160,000 KW.
- (2) Considering generated power as 18,000 KW. in Kangwŏn-do and 3,000 KW. in Puryŏng, the possible average generation of power between 15 January and 15 April would be 731,000 KW.

- (II) Possible Power Generation when the flow between 15 January and 15 April is considered as equal to the average flow 1948 and 1949.

<u>Particulars</u>	<u>Supung</u>	<u>Changjingang</u>	<u>Puchongang</u>	<u>Hochongang</u>
Reservoir water as of 15 Jan.	106m3 4009	236.7	91.2	188.8
Flow between 15 Jan. & 15 April is equal to average flow of 1948 & 1949	942	39.7	15.5	22.6
Possibly freezing water	56	13.7	6.0	6.3
Possible power generating water	4895	262.7	100.7	205.1
Effective Head	77m	920	1027	933
Efficiency	80 percent	83	80	85 percent
Possible average generation (of power) between 15 January & 15 April	380,000	253,000	104,000	205,000

- Supung (60 - system) 160,000 KW
  - Kangwŏn-do and Puryŏng System 21,000 KW
- Total possible generation (average) 743,000 KW

(III) Possible power generation when the flow between 15 January and 15 April is considered as equal to the average flow of 1925 - 1949.

Particulars	Supung	Changjingang	Puchöngang	Höchöngang
Reservoir water as of 15 Jan.	106m <sup>3</sup> 4009		81.2	188.8
Flow between 15 Jan. and 15 April	1212	236.7 38.7	16.6	45.8
Possible power generating water up to 15 Apr.	5212	275.4	107.8	234.6
Effective Head	77m	920	1627	933
Efficiency	80 percent	83	80	85
Possible average generation (of power)	407,000	266,000	111,000	234,000

- Supung (60-system) 160,000 KW
  - Kangwön-do and Puryöng System 21,000 KW
- Total possible generation (average) 792,000 KW.

4. Comparison of necessary water for power plants with actual flow after 15 April

Power Plants	Necessary water on basis of estimated furden for Apr. & May	65 per. normal year		Actual average flow (1925-1949)	
		Flow in April	Flow in May	April	May
	100 m <sup>3</sup> /Sec.	93	103	143	159
Supung	562	523	580	804.4	894.9
Changjingang	100 290	64 18.5	73 21.3	97 28.2	113 32.8
Puchöngang	100 11.9	65 7.8	70 8.4	100 11.9	108 12.9
Höchöngang	100 23.5	71 16.6	69 16.3	108 25.5	107 25.1
Total	100 626.4	90 565.9	100 626.0	138 870.0	107 965.7

- The necessary water shows the total average generating power.
- The flow in April and May is considered as 65 percent of the average actual flow.

5. Necessary power on the basis of Section 4 (above) and possible generation of power after April.

Power Plants	Necessary power on basis of estimated burden for April	When flow is 65 per. On basis of actual of normal year flow (1925-1949)			
		Pos. Gen. in Apr.	Pos. Gen. in May	Pos. Gen. in April	Pos. Gen. in May
Suplung	160,000 KW	160,000	160,000	160,000	160,000
Changjingang	218,000	140,000	159,000	212,000	246,000
Puchöngang	96,000	63,000	67,000	96,000	104,000
Höchöngang	183,000	130,000	126,000	198,000	196,000
Kangwön	18,000	18,000	18,000	18,000	18,000
Puryöng	3,000	3,000	3,000	3,000	3,000
Total	678,000	514,000	533,000	687,000	727,000
Generating power on basis of thawing reservoir water -		50,000	-	50,000	-
Spare power during three months (15% January-15 April)		40,000	40,000		
Grand Total	678,000	604,000	573,000	737,000	727,000

6. When the flow in April and May is considered as equal to the average flow of two years (1948 - 1949)

Reservoir	Nec. wat. on basis of estimate for April and May		Flow in April		Flow in May	
Suplung	100	m3/sec.	105	m3/sec.	187	m3/sec.
	562		590		1051.5	
Changjingang	100	29	83	240	78	22.5
Puchöngang	100	10.9	77	9.1	70	8.3
Höchöngang	100	23.5	92	21.5	112	26.4
Total	100	626.4	103	644.9	177	1108.7

Remarks: The necessary water shows the volume of the estimated generating burden for 675,000 KW.



7. The necessary power on basis of Section 6 and  
The possible generation of power after April

<u>Power Plant</u>	<u>Necessary power generation on basis of estimated burden for April &amp; May</u>	<u>Possible power generation in April</u>	<u>Possible power generation in May</u>	<u>Remarks</u>
Supung	160,000 KW	160,000	160,000	
Changjingang	218,000	181,000	170,000	
Puchongang	96,000	74,000	67,000	
Hochongang	183,000	168,000	205,000	
Kangwon	18,000	18,000	18,000	
Puryong	3,000	3,000	3,000	
Total	678,000	604,000	623,000	
Generating power of thawing reservoir water		50,000	-	
Spare power during three months (15 Jan. @ 15 April)		20,000	50,000	
Grand Total	678,000	674,000	673,000	

8. Estimated Burden

<u>Particular</u>	<u>Actual results of previous year (average of November &amp; December)</u>	<u>Average power of three months (15 January-15 April)</u>	<u>Average power of half month (15-30 April)</u>	<u>Average power in May</u>
Actual results of 1949	100 KW 640,000	101 648,500	94 600,000	90 577,000
Estimated results of 1950	715,000	711,000	670,000	680,000

9. Conclusion

(I) Considering the average flow of four and half Months (15 January - 31 May) as 65 percent of normal year

<u>Particulars</u>	<u>15 January 15 April</u>	<u>16 April - 30 April</u>	<u>May</u>
Possible power generation	KW 711,000	KW 604,000	kw 573,000
Estimated burden	711,000	670,000	650,000
Shortage of power	-	66,000	77,000

II) Considering the average flow of four and half months  
(15 January - 31 May) as equal to the average flow  
of two years (1948 - 1949)

<u>Particulars</u>	<u>15 January-15 April</u>	<u>16-30 April</u>	<u>May</u>
Possible generation of power	KW 743,000	KW 737,000	KW 727,000
Estimated burden	711,000	670,000	650,000
Spare power	30,000	67,000	77,000

Remarks: The spare power of the Kangwŏn-do system  
was not considered.

III) Considering the flow of three months (15 January -  
15 April) as 65 percent of normal year, and the flow  
of one and half months (16 April - 30 May) as equal  
to the actual average results of two years (1948-1949)

<u>Particulars</u>	<u>15 January-15 April</u>	<u>16-30 April</u>	<u>1-30 May</u>
Possible generation of power	KW 711,000	KW 674,000	KW 673,000
Estimated burden	711,000	670,000	650,000
Spare power	-	4,000	23,000

Remarks: The spare power of the Kangwŏn-do system  
was not considered.

Volume of Flow by Reservoirs unit M3/sec.

<u>Reservoir</u> <u>Month</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Tot</u>
Changjingang	4.9	3.6	6.4	28.2	32.8	34.2	75.0	97.5	21.1	12.7	7.6	368
Puchŏngang	2.1	1.5	2.8	11.9	12.9	16.1	30.7	40.3	21.4	10.1		

## Volume of Flow by Reservoirs unit m3/sec.

Reservoir/Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Average
Changjingang	4.9	3.6	6.4	28.2	34.2	34.2	75.0	97.5	42.4	21.1	12.7	7.6	366.1	(1925-1949) 30.5
Puchongang	2.1	1.5	2.8	11.9	12.9	16.1	30.7	40.3	21.4	10.1	6.2	3.3	159.3	(1927-1949) 13.3
Sachbpyong	1.1	1.2	1.4	4.4	4.1	6.7	12.2	14.6	11.8	4.1	2.7	1.5	65.8	(1925-1949) 5.5
Naejungni	0.8	0.5	0.8	3.0	2.8	4.2	8.9	10.8	6.7	3.0	1.7	0.9	44.1	3.7
Hwangsuwon	1.3	1.0	1.7	5.8	5.9	8.8	18.3	24.2	15.7	6.3	3.8	2.1	94.9	7.8
Hwangtupyong	2.4	2.2	3.3	12.3	12.3	20.5	31.4	46.1	24.5	11.6	7.4	3.3	177.3	14.8
Total	5.6	4.9	7.2	25.5	25.1	40.2	70.9	95.7	58.7	25.0	15.6	7.8	382.1	31.8
Supung	103.2	71.7	292.9	804.4	894.9	953.5	2185.3	2227.7	890.8	424.5	315.9	126.1	9290.9	774.3

## Consumption of Electric Power by Industries

Industries	1946	1947	1948	1949	1950
Metal	115,245,331	370,101,611	1,256,192,388	366,654,736	105,373,875
Machine	3,531,227	20,417,381	27,459,922	54,162,955	18,409,030
Mining	33,718,375	118,361,595	168,476,606	158,566,605	48,066,728
Coal	35,784,792	51,262,663	60,900,061	71,923,960	19,741,461
Chemistry	1,832,325,266	2,675,105,356	2,280,392,938	3,226,716,634	928,396,902
Building Material	25,738,082	50,421,407	78,822,694	92,117,966	23,503,084
Light Industry	56,323,136	125,786,106	160,317,519	173,132,999	57,415,954
Electricity	38,455	1,678,645	3,077,557	6,190,262	1,879,583
Vehicle	1,928,336	3,738,785	5,080,451	6,103,908	2,706,577
Civil Engineering	2,566,020	2,586,976	6,511,341	8,964,354	4,047,572
Water Pumping	9,274,324	17,951,587	32,657,697	49,420,717	3,412,387
Monopoly	1,779,737	18,531,217	33,338,354	19,639,662	333,613
Public Utilities	25,782,557	33,167,370	46,081,446	58,354,034	15,588,326
Other	5,531,489	26,143,141	55,146,634	32,237,719	13,888,458
Total	2,249,742,396	93,615,394,820	4,238,956,608	4,325,186,511	1,243,574,050
China	510,985,742	389,455,824	545,333,361	595,467,526	220,112,441
South Korea	461,739,893	577,197,464	203,187,342		
Electric Lighting	86,844,016	103,291,033	134,970,071	226,859,305	71,439,367
Electric Heating (fixed amount)	1,743,762	7,214,936	10,019,020	4,419,352	673,398
Undertakings	625,895,817	55,714,765	115,713,019	187,479,236	27,833,837
Loss	568,855,205	848,529,865	882,648,329	675,870,919	201,463,707
Total	1,693,064,435	1,981,403,897	1,891,871,144	1,599,934,529	521,522,750
Grand Total	3,942,806,831	5,596,798,716	6,130,827,752	5,924,121,340	1,765,096,800

## Cost of Power for Electro-chemical products

## 1. Fertilizers

<u>Kind</u>	<u>Prior to Liberation (15 August 1945)</u>	<u>Existing Rates</u>
Wattage - per \$ production of ammonium sulphate	3,200 KWH	3,200 <sup>KWH</sup>
Power cost " "	32 Wörn	112 Wörn
Selling price - per \$ ammonium sulphate	104 80	3,588 00
Power cost versus selling price (percent)	30.6	3.12
Power rates per KWH	1 Chörn (100/1 Wörn)	3.5 Chörn

## 2. Carbide

<u>Kind</u>	<u>Prior to Liber- ation (15 Aug 45)</u>	<u>Existing Rates</u>	<u>Remarks</u>
Wattage per \$ production of carbide	3,000 KWH	3,000 <sup>KWH</sup>	
Power cost " "	30 Wörn	111,60 Wörn	
Selling price per \$ carbide	204.75 Wörn	4,212.45 Wörn	
Power cost versus selling price (percent)	12.4 percent	2.65 percent	
Power rates per KWH (average)	1 Chörn (100/1 Wörn)	2.93 Chörn	

## 3. Sodium Hydroxide

<u>Kind</u>	<u>Prior to Liber- ation (15 Aug. 45)</u>	<u>Existing Rates</u>	<u>Remarks</u>
Wattage per \$ production of Sodium hydroxide	4,000 <sup>KWH</sup>	4,000 <sup>KWH</sup>	
Power cost " "	40 Wörn	144.80 Wörn	
Selling price per \$ sodium hydroxide	275,57 Wörn	18,342.00 Wörn	
Power cost versus selling price (percent)	14.5 percent	0.79 percent	
Power rates per 1 KWH (average)	1 Chörn (100/1 Wörn)	3.62 Chörn	

Outline of Electrical Industry in North Korea at the  
time of Liberation (15 August 1945)

1. The Korean Power Company, Ltd., (Chosŏn Chŏnŏp)

Capital (authorized)	341,730,000
Capital paid up	(unavailable)
Fixed Assets	850,840,000
Debt	624,514,000
Generating Equipment	948,000 KW
Service Line for Direct Supply	750,000 KW
Number of Employees	2,590

2. The Amnokkang Hydroelectric Company

Capital (authorized)	125,000,000
Capital paid up	75,000,000
Fixed Assets	202,780,000
Debt	137,000,000
Generating Equipment	700,000
Number of Employees	672

3. West Korea Consolidated Electric Co. Ltd.,  
(Sŏsŏn Haptong Chŏngi)

Capital (authorized)	30,000,000
Capital paid up	4,900,000
Fixed Assets	30,381,000
Debt	12,950,000
Power Supplied	
Electric Lamps used	811,500 lamps
Electric Power used	167,500 KW
Electric Railroad	13 KW
Number of Employees	3,000

4. North Korea Consolidated Electric Co. Ltd.,  
(Puksŏn Haptong Chŏngi)
- |                      |               |
|----------------------|---------------|
| Capital (authorized) | 11,500,000    |
| Capital paid up      | (unavailable) |
| Fixed Assets         | 21,024,000    |
| Debt                 | 1,160,000     |
| Power Supplied       |               |
| Electric Lamps used  | 557,300 lamps |
| Electric Power used  | 103,200 KW.   |
| Number of Employees  | 1,090         |
5. The Seoul Electric Co. Ltd., (North of 38th Parallel)  
(Kyŏngchŏn or Keiden)
- |                                      |              |
|--------------------------------------|--------------|
| Fixed Assets                         | 9,550,000    |
| Power Supplied                       |              |
| Electric Lamps used                  | 59,300 lamps |
| Electric Power used                  | 8,600 KW     |
| Extension of Electric Railroad Lines | 67.6 Km.     |
| Number of Employees                  | 676          |
6. Total
- |                       |                 |
|-----------------------|-----------------|
| Fixed Assets          | 779,185,000     |
| Generating Equipment  | 1,648,000 KW    |
| Power Supplied        |                 |
| Electric Lamps used   | 1,428,100 lamps |
| Electric Power used   | 279,300 KW      |
| Special Service Power | 750,000 KW      |
| Number of Employees   | 8,028           |

## Comparison of Indices Showing Increase of Power Production

<u>No.</u>	<u>Factory</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
		HP Index				
		100				
1.	Sŏngjin Steel Mill	Product. Index 100	175	225	190	(187)
		100	200	336	350	
2.	Chŏngsu Chemistry	160	173	213	224	(225)
		100	333	710	760	
3.	Kangsŏn Steel Mill	100	251	590	870	(1030)
		100	290	615	750	
4.	Sunchŏn Chemistry	100	132	166	181	(180)
		100	160	156	212	
5.	Hwanghae Iron Mill	100	186	310	328	(326)
		100	552	1380	1700	
6.	Nampo Refinery	100	670	820	830	(820)
		100	165	165	185	
7.	Sudong Anthracite	100	110	115	108	
		100	110	144	143	
8.	Sŏnghŭng Mine	100	111	140	140	
		100	111	111	102	
9.	Suan Mine	100	195	310	223	
		100	152	176	148	
10.	Taeyudong Mine	100	130	138	162	
		100	162	415	505	
11.	Hŭngnyŏng Coal Mine	100	72	195	174	
		100	232	310	240	
12.	Sunghori Cement	100	108	200	154	
		100	254	376	535	
13.	Chŏnma Mine	100	300	385	319	
		100	305	343	200	
14.	Sinŭiju Paper Mill	100	376	245	248	
		100	220	240	338	
15.	Haeju Cement	100	260	280	243	
		100	675	325	1400	
16.	Madong Cement	100	250	300	363	
		100	270	355	600	

## Labor Plan (1949)

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Enterprise	Production Basic Construction	Productive					Non-Productive			Total
		Laborers	Skilled Workers	Engineers	Office Workers	Misc. Workers	Apprentice	House hold	Drilled	
Suifu	Production	28	292	28	15	3	25	2	17	213
	Balance	164	140	6	6	-	-	-	-	292
	Total	188	292	24	41	3	25	2	17	295
Hochengang	Production	95	899	58	40	5	115	27	7	712
	Balance	21	121	10	4	-	-	-	-	226
	Total	216	598	61	44	5	115	27	7	712
Changhsang	Production	22	242	17	31	-	24	4	1	267
	Balance	200	117	2	3	-	-	-	-	322
	Total	222	309	19	34	-	24	4	1	329
Hochengang	Production	15	114	17	12	1	27	1	1	128
	Balance	10	21	15	10	-	-	-	-	219
	Total	25	135	32	22	1	27	1	1	247
Kangshen	Production	17	157	1	1	1	22	2	1	163
	Balance	97	12	10	4	3	-	-	-	126
	Total	114	169	21	5	4	22	2	1	189
Bengyang	Production	12	209	1	-	-	-	-	-	221
	Balance	90	140	-	-	-	-	-	-	230
	Total	102	349	1	-	-	-	-	-	351
Bengyang	Production	12	227	1	91	2	312	1	1	329
	Balance	4	23	1	-	-	-	-	-	28
	Total	16	250	2	91	2	312	1	1	357
Jiyuan	Production	12	245	11	15	2	372	1	1	417
	Balance	84	81	2	1	-	-	-	-	168
	Total	96	326	13	16	2	372	1	1	585
Haoja	Production	13	250	17	12	1	31	10	3	317
	Balance	-	-	-	-	-	-	-	-	-
	Total	13	250	17	12	1	31	10	3	317
Shinji	Production	13	205	17	74	1	310	1	3	329
	Balance	20	14	2	1	-	-	-	-	37
	Total	33	224	19	75	1	310	1	3	366
Nampo	Production	13	102	7	39	1	162	10	3	195
	Balance	22	15	1	1	-	-	-	-	39
	Total	35	117	8	40	1	162	10	3	234
Kanggye	Production	13	215	12	57	1	292	13	3	308
	Balance	26	19	1	1	-	-	-	-	47
	Total	39	229	13	58	1	292	13	3	355

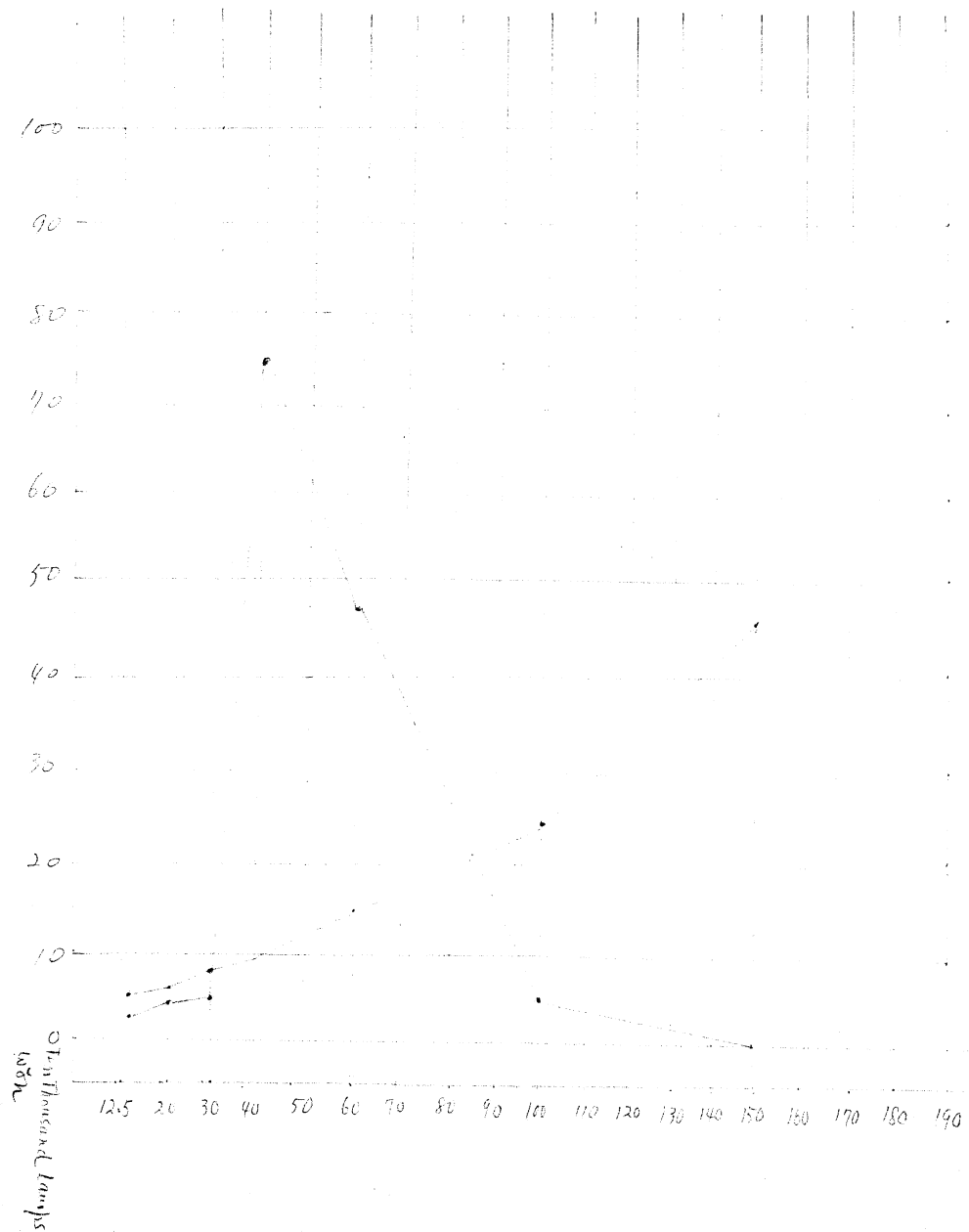


Hankou	Production	21	192	15	92	270	12	5	16	407
	Electricity	5	30	2		37				37
	Total	26	222	17	92	307	12	5	16	444
Chongjin	Production	18	278	12	100	408	20	5	25	432
	Electricity	14	24			38				38
	Total	32	302	12	100	446	20	5	25	470
Kaucho	Production	8	212	2	97	319				319
	Electricity	20	50	2		72				72
	Total	28	262	4	97	391				391
Winnan	Production	23	107	12	11	153				153
	Electricity	1		2	1	3				3
	Total	24	107	14	12	156				156
Total	Production	151	2002	43	1402	5007	32	10	46	5095
	Electricity	119	240	14	33	306				306
	Total	270	2242	57	1435	5313	32	10	46	5401
Tangpo	Production	144	1002	30	40	1116				1116
	Electricity	144	1002	30	40	1116				1116
	Total	288	2004	60	80	2232				2232
Shantcar	Production	312	312	2	32	656	10	10		676
	Electricity	312	96	6	1	319				319
	Total	624	408	8	33	975	10	10		995
Kingsa	Production	144	992	10	30	1176	10	10		1196
	Electricity	144	992	10	30	1176	10	10		1196
	Total	288	1984	20	60	2352	20	20		2392
Electric	Production	205	212	11	44	472	10	5		487
	Electricity	112	112	5	2	231				231
	Total	317	324	16	46	703	10	5		718
Total	Production	1442	1002	43	1402	5007	32	10	46	5095
	Electricity	119	240	14	33	306				306
	Total	2631	1242	57	1435	5313	32	10	46	5401
Grand Total	Production	3591	2330	128	156	6286				6286
	Electricity	448	430	20	36	934				934
	Total	4039	2760	148	192	7220				7220



# Graph of Electric Light Rates ( 31 December 1949 )

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# Loss of Power at Dairch Transmission Line

722  
143

1. Power Line 1. A.C.S.R 45 + 454 A / 3.08  
R = 0.0 7165  $\Omega$  / Km

2. Extension 342.4 Km

3. Charging Current 134 A per Line

Formula used

$$P_L = 3 R_L ((I^2 - I_0^2) \sin^2 \theta + \frac{1}{2} I_0^2)$$

Power factor 90% Assumption Since = 43.6

Busbar M.W.	$E_F = 200$ KV hours	$E_D = 150$ KV hours
	KW	KW
40 M.W.	11.00	2.80 1.340 3.36 <sup>05</sup>
50	1660	3.82 2.040 4.08
60	2390	3.95 2.930 4.88
70	3220	4.60 3.980 5.70

Voltage drop 6.5%

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## Electric Power in Demand

Products	Necessary Power in KW	Remarks	Products	Necessary Power in KW	Remarks
Carbide	3,000		Nitric acid by arc method	12,000	
Phosphor	10,000		Electric iron process	2,400	
Silicon from $\text{SiO}_2$	6,000 10,000		Manganese iron	4,000	
Carbon graphite	8,000	Fuel and materials - graphite, barite, etc.	Electric steel process	400	
Aluminum	25,000	and other materials - alumina, etc.	Electric zinc	4,500	
"	40,000	2. Fuel and materials - alum and	Electric iron process	3,000	
"	30,000	3. Other products	Graphite	2,500	
Magnesium	30,000		Electrolytic lead	4,000	
Sodium hydrosulfide	4,000		Synthetic fuel	2,400	1. Fuel source is derived from line
Electric copper	900		"	5,000	2. Fuel source is derived from water separation
Monochlorine sulfate	3,200		Synthetic hydrogen peroxide	20,000	
Nitric acid	15,000		Synthetic graphite	15,000	
Carborundum	8,000 10,000		Electric iron	2,500 8,000	
Synthetic Rubber	90,000			15,000	

145227

## Comparison of Electrified Farm Implements and Human Labor

Implements.	Labor (man)	Motor (HP)	Comparison	Remarks
Rice Threshing	780 m <sup>2</sup>	4,900 m <sup>2</sup>	625%	
Rice Hulling	4 bags	40 bags	1000 "	
Pumping	60 'sok'	250 'sok'	400 "	
Rice cleaning	6 'mal'	1.5 'sok'	250 "	
Straw rope making	8 'man'	40 'man'	500 "	
Flour Milling	15 'mal'	5 'mal'	300 "	

Implements	Experimental Turning House	Net working hours per day	Quantity dis- posed per day	Time necessary to dispose one 'sok'	Power necessary to dispose one 'sok'
Rice Threshing	17	5" 46'	5.6 'sok'	42 m.	0.41 KwH
Rice Hulling	16	2" 55'	4.8	34 m.	0.42
Rice cleaning	11	-	0.75		3.20
Flour Milling	3	-	0.66		7~11.2

8 November 1950

Conditions of Streetcar Business

Division of Duties (as of 25 June)

Manager

Chief Engineer

	Commodity Supply Section
	General Affairs Section
	Material Section
Transportation Division	Transportation Section Business Section
Financial Division	Accounting Section Budget Section Property Custody Section
	Overhauling Section
Engineering Division	Construction Section Track Section Rolling Stock Section Power Section
Labor Division	Wage Section Standard Quantity Section
Staff Division	Training Section Staff Section
Planning Division	Safety Engineer

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Transformer Substation

Items Substations	Location	Equipment Capacity	Tools & Machinery	Drumage done	Engineers reports	Remarks
Kangbyelli (Hanchao)	loc. 18. Kangbyelli	Transformer primary Super High Voltage 3,200 KVA	400 V 3000 plus	None		Construction in progress.
Indingui	Indingui	Transformer primary Super High Voltage 1025 KVA	600 V 750 KVA	None		Construction in progress.
Ma Donggul (Yanggich)	loc. 12. Yanggich	Transformer primary Super High Voltage 615 KVA	600 V 400 KVA	None		

Substation Equipment

Locality	Name of Substation	Capacity	Transformer						Basic Materials						Remarks
			Rating	Volts	Power	Watts	Watts	Watts	Watts	Watts	Watts	Watts	Watts	Watts	
Pyeongyang Kangbyelli	"	3000	3000	3300	500	1000	30	60	1	1					For the use of primary electricity
Pyeongyang Indingui	"	1500	1025	3300	500	1000	30	60	1	1					
Pyeongyang Yanggich	"	400	615	3300	500	1000	30	60	1	1					



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## Survey of Electric Railroad Business 148

(as of 25 June)

Crossbar 12,094 m

Extension 18,032 m

Number of cars	21	Small size car	21	Medium size logic car	19	Large sized logic car	11	(as of 25 June)
Number of cars	30	Small size car	11	Medium sized logic car	13	Large sized logic car	6	(as of 20 October)

### Number of Employees

Office worker	Engineers	Skilled workers	Motorman	Conductors	Inspectors	Switchmen	Guides	Reservists	Total
67	7	132	132	121	24	45	10	36	594

### Survey of Buildings (as of 30 June)

Kind	Power Plant	Transformer and substation	Control building	Station	Other	Total
Number of Buildings	1	1	1	1	2	6
Stories	1	1	1	1	2	6
Floor Area	2,000	1,000	1,000	1,000	1,000	6,000
Structure	Brick	Brick	Brick	Brick	Brick	Brick
Roof	Tile	Tile	Tile	Tile	Tile	Tile

### Land and Attached Property

Power Plant	Transformer and substation	Control building	Station	Other	Total
206	309	1,029	238	165	2,007

### Survey of Operation Condition

The streetcars were run under the name of the Streetcar Business Office, Power Control Bureau, Department of Industry. The per diem average run as of 25 June is shown below:

<u>Number of cars</u>	<u>Cars on run</u>	<u>Kilometers run</u>	<u>Number of Passengers</u>	<u>Receipt</u>
51	29	5200 Km	140,000	70,000 W8n

The average operation condition during October (after bombing) gives the following figures.

<u>Number of Cars</u>	<u>Cars Destroyed</u>	<u>Cars on run</u>	<u>Kilometers run</u>	<u>No. of Passenger</u>	<u>Receipt</u>	<u>Operat ion hours</u>
51	30	10	500 Km	3500	15,000 W8n	5

### Plan for future operation

Between 20 October and 15 November the bombed carlines (representing 45 percent of the total mileage), and five out of 30 cars (all of which needs light repairs) will be completely repaired, along with track clearance by labor storm troopers between 20 October and 20 November, in order to operate 45 percent of 51 cars covering 2,000 kilometers per diem. When the war ends new cars will be imported by trade.

## Survey of Stores

(as of 30 October 1950)

<u>Location</u>	<u>Material</u>	<u>Type</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
No. 489, Inhüingni Door knob				500	
"	Arbesto plate	80x40mm		10	
"	Twisted iron wire	2.6x7mm		1,500	
"	Bamboo broomstick			300	
"	Copper plate	80x60cm		4	
"	Poreelain insulator			500	
"	Tin		Kg	35	
"	(Babet' meter		"	10	
"	Lead		"	15	
"	Antimony		"	20	
"	Receiver	porcelain2		25	
"	Brass		¢	1	
"	Carbon brush	25HP		300	
"		35HP		500	
"	Capcon			100	
"	Glue		Kg	20	
"	Insulating varnish		litre	1400	
"	Ihyue-umid'			5	
"	'Rues'		kwan	30	
"	Beater			100	
"	Hanger			300	
"	Spanner	7/8x1	kwan	10	
"	"	6/8x7/8	"	40	
"	Hanger		"	100	
"	High speed steel	1mx4	"	7	
"	Machine oil		D/M	1	
"	B grease		can	42	
"	Gear Grease		D/M	5	
"	Cement		¢	70	
"	Knob insulator			10	
"	Glass	90x60	box	8	
"	Iron plate	351.3mx5		2	
	Harddrawn copper wire	12 m/m		1,500	

Survey of Electric car (estimated Aug 25, 1900)

From Hysanung RA Station Kepingwile  
To West Kapinggah station Jambhaur

San Antonio, Tex.      Kippenhaver  
J. L. Loring      George Brock

Don. *Amphispiza bilineata*  
 1000 ft. - 12000 ft. - 20000 ft.

Worms, *Ascaris* & *Trichostrongylus* *Ascaris* *Trichostrongylus*

dim liquid in tank single tank  
no reading

Survey of Effluent - 10/25/66/50

Articles	Quantity	Remarks
Portable direct current voltmeter 750 V	1	Damaged and destroyed 11/9 Oct. '30
" " 500 V	1	" "
" " 150 V	1	" "
" " 130 V separator	1	" "
" direct current voltmeter 750 V	1	" "
" " 150 V 130 V	1	" "
" alternating current voltmeter 500 A	1	" "
" direct current wattmeter 100 A	1	" "
" Pound meter	1	" "
Megaphone 500 V	4	" "
" 1000 V	1	" "
Ground resistor	1	" "

(No. 3) Working machinery

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## Summary of Equipment (as of 22 June 1960)

Equipment	Quantity	Remarks	Machine	Quantity	Remarks
Self-propelled	1	new diesel	14P	2	new 14P
" 6P	1	"	20P	1	new
" 12P	1	"	40P	3	new
Self-propelled	1	"	40P	1	new
Self-propelled	1	"	40P	1	new
Shipping container	1	"	40P	1	new
Motor vehicle	1	"	40P	1	new
Truck with trailer	1	"	40P	1	new
" 40P	1	"	40P	1	new
Generator	1	"	40P	1	new
Engine motor	1	"	40P	1	new
Electric motor	1	"	40P	1	new
Transformer	1	"	40P	1	new
Electric motor	1	"	40P	1	new
" 1/2	1	"	40P	1	new
" 1/4	1	"	40P	1	new
Electric saw	1	"	40P	1	new
(medium size)	1	"	40P	1	new
Refrigerator	1	"	40P	1	new
(1/2 HP)	1	"	40P	1	new
Portable grinder	1	"	40P	1	new
(1/2 HP)	1	"	40P	1	new
Grinder 1HP	2	"	40P	2	new
Bolton 14 HP	4	"	40P	4	new

# Home Power Plants and Capacity (June 1950)

<u>Locations of Home Power Plants</u>	<u>Capacity</u>	<u>No. of Generator</u>	<u>Remarks</u>
1. Chŏngjin Textile Mill	10,000	2	One being used
2. Chŏngjin Iron Mill	5,000	3	under repair
3. Yŏngan Chemical Factory	2,500	2	details unavailable
4. Hwanghae Iron Mill	6,000 1,000	1 1	
5. Pyŏngyang Corn Products Fact.	1,500	1	
6. Pyŏngyang Chemical Factory	6,250	1	
7. Madong Cement Factory	2,500	2	under repair
8. Haeju Cement Factory	10,000	3	Operation suspended
9. Sŭnghori Cement Factory	6,000 3,000	1 1	
10. Chŏnnaeri Cement Factory	5,000	1	operation suspended
11. Komusan Cement Factory	4,500	1	being used

## Survey of Equipment at Home Power Plant, Korea corn Products Mill (as of November 1950)

### Generator

A.C. Generator Serial

K.W. 1500 R.P 75 percent Volt 480 Amp 2260

Cy 60 Co Ph3 R.P.M 3600

Temp Wire 60C and pall loos

Excitation 125 Volt 85 Amps

Aelis - Chalmers Manufacturing Co.

Mil werkes wis U.S.S.

### Motor

Steam Turbine U.S.S.

### Excitator

D.C. Generator 15 KW 125 Volt (Two excitation

One is run by steam engine, and one by electric motor).

### Attended Equipment (of electric motor)

Heavy oil pump	5 HP	one
Chimney dusting	60 HP	one
Lift pump	125 HP	one
Blower	25 HP	one
Stoker	25 HP	one
Drainage Pump	75 HP	one
Feed Pump	175 HP	one

### Trans

## Transformers (evacuated)

500 KVA	3300V/440 - 480 V	Three
150 "	"	Three
125 "	"	Two

Type - boiler hoist coil (with two motors)

## General Condition

PAK Pong-nae This engineer, who has an experience of twenty years in operating generator above mentioned, is now maintaining his crew of 22 men and has finished overhaul. He is ready to make a test of the generator as soon as he will receive 300 KVA power, which is necessary to start moving it.

Generator . Up to 14 October, this generator was operated along with motor. An insulating test has proved of its possible operation since it keeps

2 .

Motor. Relay conductors, tumblings, etc., dismantled and hidden by the Reds, were recovered and repaired.

Excitator and parts. All intact.

Transformer. During Storage in bombshelter underground about 500 meters distant from the power plant, its insulating strength was weakened to a point of 10,000 but it is usable if properly dried and remantled.

Boiler. Completely overhauled. It was full of heavy oil ready for firing with pulverized coal, and the pulverizer was also in good condition.

Coal Supply Its own stock of pulverized coal, 70 tons, and the store of 5,000 tons at the Pyŏngyang Chemical Factory will be sufficient for 100 day's use consuming 50 tons per diem. No return heat is available at the steam engine without a condenser, and per KWH consumption will be greater.

Transformer Oil. There was no stock at the Korean Corn Products Mill. Only two drums of OT was found at the Textile Mill, Six drums are necessary in order to run three 500 KVA. Therefore, four drums will be sought at the substations in the power transmission system.

Power Reception. In order to send electricity from Sadong (now generating power) to the Korea Corn Products Mill through power distribution line during the test period, assistance is being sought from the restoration squad of the City Power Distribution Office.

*James M. McLaughlin*



	Supply	26,000	26,000	537
	Profit	15,120	15,120	1,556
	Supply	11,500	11,500	
	Profit	12,120	12,120	

Grand Total 26,000 26,000 12,120 12,120



## Evacuation of Instruments (as of October 1950)

Location	Article	Type	Unit	Quantity and Distance	Destination	Usable Period of Instrument (days)	Number of days required
Chinnang Substation	Transformer	500K MCC	1	Field 60 m	Usable	20	10
Chinnang Substation	"	500K MCC	1	Field 200 m	Usable	20	10
Chinnang Substation	"	500K MCC	1	Field 50 m	Usable	20	10
Tachung Substation	"	500K MCC	1	Field 200 m	Usable	20	10
Shang-tai	"	"	1	Field 100 m	Usable	20	10
Flangping	"	500K MCC	1	Field 100 m	Usable	20	10
Kiyang	"	"	3	Field 100 m	Usable	20	10
Manabang	"	"	2	Field 100 m	Usable	20	10
Wan-pi	"	"	2	Field 100 m	Usable	20	10
Kwangyang	"	"	1	Field 100 m	Usable	20	10
Chackam	"	500K MCC	6	Field 150 m	Usable	20	10
Ohai	"	"	3	Field 100 m	Usable	20	10

## Evacuation of Instruments (as of October 1950)

at the Substation.  
Kiyang Chemical (Factory)

Location	Article	Type	Unit	Quantity and Distance	Destination	Usable Period of Instrument (days)	Number of days required
	500KVA	66/22 KV	3	Field Ground 50 m	Usable	60	3
	Transformer	Single phase	1	100 m	"	20	3
	E.C.B.	66 KV	1	100 m	"	20	3
	P.T.	66/110 KV	1	100 m	"	20	3
	O.C.B.	11 KV	1	100 m	"	40	5
	C.T.	66 KV 150 / 5A	2	150 m	"	30	5

# Evacuation of Instruments 40 of October 1950

Kangsin Steel Mill

18 pps

Location	Articles	Capacity	Unit	Quantity	Destination & Remarks	Usable or Unusable	Number of Instruments restored or repaired	Number of Instruments required
Kangsin, Cheri- ngin, Kinsong	Transformer	110KV/33KV 3750 x 400	3	11466	500	30		
"	"	11KV/33KV 3750 x 400	3	"	160	15		
"	"	11KV/33KV 3750 x 400	3	11466	500	30	1000	
"	(C.I.) (O.C.F.)	11KV 3750	1	1000	200	20	will be restored after inspection	
"	(C.I.) (O.C.F.)	11KV 3750	1	1000	200	20	will be restored after inspection	

## Evacuation of Instruments 40 of October 1950

Chinampo, Cheri-ning

Location	Articles	Capacity	Unit	Quantity	Destination & Remarks	Usable or Unusable	Number of Instruments restored or repaired	Number of Instruments required
Hadamuri, Chinampo	Transformer	500	2	300	Basin outside riverbank	200	17	
	Waterboard	phase	15	200	200	200	30	

## Evacuation of Instruments 40 of October 1950

Chinampo, Cheri-ning

Location	Articles	Capacity	Unit	Quantity	Destination & Remarks	Usable or Unusable	Number of Instruments restored or repaired	Number of Instruments required
Hadamuri, Chinampo	Transformer	3500	"	300	400	300	5	
"	"	1250	1	400	unusable	500	10	
"	"	9850	1	150	usable	200	5	
"	"	3000	1	150	usable	200	5	
"	Memory- caper potentiometer	3500	2	150	"	400	10	
"	"	3000	1	150	"	200	5	
"	Memory- caper potentiometer	3500	2	200	"	100	5	

Remarks: Except Potary all were buried.

# Evacuation of Instruments East October 1950 160

(Chinnampo Glass Factory Substation)

Location	Article	Capacity	Unit	Quantity	Remarks	Weight	Volume
Masalli	Red	1000	1	1000	1000	25	3
Chinnampo	Red	1000	2	1000	1000	25	5
"	Red	1000	2	1000	1000	25	3
"	Red	1000	2	1000	1000	25	5
"	Red	1000	2	1000	1000	25	5
"	Red	1000	2	1000	1000	25	5

## Evacuation of Instruments East October 1950

(Chinnampo Glass Factory Substation)

Location	Article	Capacity	Unit	Quantity	Remarks	Weight	Volume
Tohangni	Red	1000	1	1000	1000	25	7
Chinnampo	Red	1000	4	1000	1000	25	15
"	Red	1000	3	1000	1000	25	15
"	Red	1000	6	1000	1000	25	45
"	Red	1000	1	1000	1000	25	5

(12)  
Ordinance No. 7

Ministry of Industry

Approved by KIM Il-sŏng, Cabinet Premier,

The Democratic People's Republic of Korea

Regulations  
governing  
Supply and Demand of  
Electricity

The Pyŏngyang Power Distribution Office

Ordinance No. 7  
 Ministry of Industry  
 Approved by KIM Il-sŏng, Cabinet Premier,  
 The Democratic People's Republic of Korea

Regulations governing Supply and Demand of Electricity.

Chapter I. (General Provisions

Article I. The supply and demand of electricity shall be governed in accordance with the present regulations. The supply organs referred to in the present regulations indicate all national organs for distribution of electricity, and the users referred thereto indicate all organs, bodies, enterprises, and individuals who consume electricity.

Article II. The supply and demand of electricity shall be limited by the following kinds and standards, provided that different standards may be applied in special cases.

System/kind of supply	Electric Light	Electric Power	Electric Heat
Electric System	Two-wire system, alternative current Single phase.	Three-wire system, alternative current three phase	Two-wire system, alternative current, Single phase
Frequency	60 cycles	60 cycles	60 cycles
		Low voltage 220V High " 3,300V 11,000V	
Voltage	100 Volt	22,000V 44,000V 66,000V 154,000V 220,000V	100V
Supply Hours	Day or night	Day and night	Day and night

The voltages may, at the places of supply, be regulated up to 5 percent for light, and 10 percent for power and heat.

The supply organs, when deemed it necessary to overhaul or repair machines and electric lines, may suspend the daytime supply not more than two days per month. In the above case, the supply organs shall give a previous notice to the users within twenty four hours through newspapers, radios, and other information media or telephones, provided that the same notice may be omitted for the users of electric light.

Article III. The supply organs shall give a full information to the users about the regulations governing supply and demand of electricity, and shall post up explanatory bills on the bulletinboard at their business houses at all times.

#### Chapter II. Process of Supply and Demand

Article IV. Those who wish to use electricity shall apply to a supply organ in accordance with a prescribed form by stating thereon kind, use, capacity, number of lamps, and place of use. The same rule shall apply when any change or cut is made wholly or in part at the using categories.

Article V. The Supply organ shall, within ten days of receipt of the foregoing application, serve a notice to the applicant, informing its decision for or against his application.

Article VI. The supply organ shall provide electricity only when the following conditions are fulfilled and when it can satisfy the demand.

1. When the user will observe laws and regulations governing supply and demand of electricity.
2. When the electrical equipment and machines at the place of use are complete and in good order.



3. When the approval of the Director of power control Bureau, Ministry of Industry, has been obtained for the use of electricity above 50 kilowatts.

Article VII. When a change is made in users at a place of use one account of removal, transfer of any other reasons, the new user shall succeed to all rights and duties of the former user in the use of electricity. In the above case, the new user shall file a declaration with the supply organ without delay.

Chapter III. Installation and Repair of Electrical Structures

Article VIII. The installation, maintenance, and repair of distributing line (including transformer) and branch line leading to the place of use shall be borne by the supply organ. When a special installation or a large expense is required on account of the actual condition or any other reason, the user may be charged for such expense in full or in part. In such a case the equipment shall be owned by the supply organ.

Article IX. The installation, maintenance, and repair of electrical apparatus and electrical instruments inside the place of use shall be performed by the supply organ at the expense of the user.

Article X. The user may, with the permit of the Minister of Industry, install electrical apparatus for home use at his own expense, and shall repair his own equipment so that the general supply of electricity may not be interrupted.

Article XI. The new installation or change of watt-hour meter inside the place of use shall be performed by the supply organ by kind of supply, ie., lamp, power, and heat.

Article XII. The user may not employ any electrical instruments which have not been tested or authorized by the Ministry of Industry. The supply organ may, during supplying electricity, test electrical apparatus and electrical instruments any time at the place of use, and it necessary, seal the current limiter or electrical instruments.

Article XIII. The supply organ, when deemed it necessary on security reasons, may order change, repair, special installation, or dismantling of electrical apparatus and electrical instruments in the ownership of the user. In such a case the working expense shall be borne by the user.

Article XIV. The user, when perceived his electrical apparatus in bad conditions, shall immediately inform the supply organ. On being informed of the case the supply organ shall overhaul the apparatus in question within three hours in cities and twelve hours in other places.

Article XV. The user, when wishing erection, addition, change, or repair of structures directly affecting his electrical apparatus, shall inform the supply organ in advance.

Article XVI. When the user intentionally or through neglect damaged or lost any electrical apparatus or electrical instruments in the ownership of the supply organ, he shall bear the responsibility of compensation.

Chapter IV. Method of Supply

Article XVII. Lamp light shall be supplied by three kinds as follows:

1. Fixed - rate lamp light to a place using less than 30 lamps for a fixed amount of rates on the basis of candle-power per lamp.
2. Meter-rate lamp light to a place using more than five lamps for amounts charged on the basis of number of lamps and wattage used, provided when deemed necessary, light may be supplied for meter rates to a place using less than five lamps.
3. Temporary lamp light to a place using light continually for a period less than one month on the basis of a fixed amount or meter rates.

Article XVIII. The lamp light for illumination may not be supplied during daytime, unless deemed necessary for work or for the actual condition of the place of use.

Article XIX. The user of lamp light may additionally use radio, electric clock, or home iron (below 500 W.) with the permit of the supply organ.

Article XX. Power shall be supplied by three kinds as follows:

1. Permanent power shall be supplied to those who continually use electric power for a period more than three months by meter system on the basis of contract capacity.
2. Temporary power shall be supplied to those who continually use electric power for a period less than three months according to the method of supply as in the case of permanent power.
3. Summertime power shall be supplied to irrigation, pumping, and other farming activities, & summer time uses only according to the method of supply as in the case of permanent power.

Article XXI. The electricity supplied as power shall not be used for lighting or heating provided that a proprietor of an electrical apparatus may use it for lighting in workshop and office of production

Article XXII. The contract capacity of power shall be equal to the gross capacity of electrical equipment inside the place of use provided that in case of using a private transformer it shall be equal to the larger capacity of the transformer or the equipment. When the equipment capacity is market with HP or KVA, it shall be counted as 1 KW for 1 HP or 1 KVA/ When a figure in the gross capacity is less than 1 KW, it shall be counted as 1 KW.

In the supply of more than 50 KW, a maximum contract capacity may be arranged regardless of the equipment capacity.

Article XXIII. The method of supply of electric heat shall follow the meter system on the basis of contract capacity.

Article XXIV. The electricity supplied as heat shall not be used for lighting.

Article XXV. The contract capacity of electric heat shall be determined on the basis of the gross equipment capacity as follows provided that in case of using a private transformer, it shall be determined according to the larger capacity of the transformer or the equipment.

1. Current limiter.
2. Maximum capacity of instruments with one socket.
3. Largest capacity among instruments used with more than two sockets. When a figure less than 1 KW. appears in the aggregate gross capacity, it shall be counted as 1 KW.

Article XXVI. The actual maximum wattage of power and heat shall be determined according to the hourly or half-hourly indicator of the watt-hour meter, the largest wattage of a month or a given period being the largest power of the same month or the same period.

Article XXVII. The users of electric power and electric heat shall always maintain an equilibrium of burden among power and phases used at the place of use, and keep the moment of force at over 85 percent.

Article XXVIII. The proprietor of electrical structures for home use shall enter a clear record of necessary items concerning power supply by keeping a diary in a prescribed form, and he shall produce the same record or send its copies whenever is required by the supply organ.

#### Chapter V. Limitation, Cut, and Suspension of Supply

Article XXIX. A user, corresponding to one of the following categories, shall have his power supply at or limited by the supply organ.

1. When ordered by law and ordinance, Cabinet decision, or directive of the Minister of Industry.
2. When compelled by natural calamity or other force majeure.
3. When threatened with possible Breakdown of electrical structures, or necessary for their repair, change, overhaul, etc.,
4. When necessary for security

Article XXX. A user, corresponding to one of the following categories, shall have his power supply suspended or rejected by the supply organ.

1. Violating laws and ordinances, decisions and directives governing electrical industry.
2. Stealing and misusing of electricity.
3. Delaying payments of electric rates and dues.
4. Damaging the supply organ by breakdown or loss of electrical structures in the ownership of the supply organ, or by improper use of electricity, through design or grievous error.
5. Using electricity, or refusing inspection of electrical apparatus, contrary to the provisions of Articles XII and XXXII.
6. Nonfulfilling order of Article XIII.
7. Disregarding the notice of Article XV.
8. Neglecting recording required by Article XXVIII, or entering a false record.

Article XXXI. Although damage is incurred by a user due to limitation, cut, suspension, or rejection of current supply in accordance with the two foregoing Articles, the supply organ may not be responsible for compensation.

#### Chapter VI. Control on Steel and Misuse of Electricity.

Article XXXII. The supply organ, in order to keep steal and misuse of electricity under control, may inspect the condition of using of electricity at any time.

Article XXXIII. When a user has committed one of the following

, acts without permission in the use of electricity,  
 he shall be regarded as having stolen and  
 misused electricity.

1. New installation, addition, or use of electricity exceeding the contract capacity.
2. Lighting night-lamps on daytime.
3. Using electricity for purposes and at places other than those approved or authorized.
4. Illegal use of meter-apparatus by change thereof.
5. Use of unauthorized instruments.

Article XXXIV. When the fact of steal or misuse is corresponding to one of the following items, the user may become object of suspension or rejection of supply for a period not exceeding three months in accordance with Article XXX. When the circumstance is of moment, it shall be dealt with by legal procedures.

1. Illegal use of electricity by change of a meter apparatus.
2. New installation or addition of power machines.
3. New installation or addition of electrified rooms(ondol).
4. New installation or addition of electrical heat.
5. New installation of two or more lamps, or addition of three or more lamps.
6. Use of unauthorized instruments

7. Repeated acts of offence.

Article XXXV. When an electrical equipment or instrument has been damaged in the act of stealing, or lost due to steal or misuse, an expense covering the complete restoration of the same shall be collected.

Article XXXVI. All instruments which have been stolen or misused shall be seized.

Chapter VII. Electric Rates

Article XXXVII. The electric rates shall be charged according to sealing prices fixed by the State.

Article XXXVIII. The user shall pay on demand the following electric rates at a place or to a person designated by the supply organ.

1. Fixed electric rates

A fixed amount of electric rates, covering one month or several months, shall be collected in advance by counting a calendar month as one month.

2. Meter rates

A total amount of the monthly basic rates and the meter rates for wattage used shall be collected monthly as the electric rates covering the given month by counting a calendar month as one month. The meter-rates shall be calculated by the wattage used between the days of inspection in the previous month and in the current month.

The basic rates shall be paid although current was not used.



Unless otherwise provided for, the calculation of electric rates shall be performed by the unit of watt-hour meter.

3. Temporary power rates

When current is supplied by a fixed amount system, such amount of rates shall be paid in advance; and when by meter system a prepayment of an estimated amount, shall be made to be settled with an accurate account on finishing the use of electricity,

4. All fees and sundry working expenses shall be collected on each particular occasion.

Article XXXIX. When the number of days using the current is

less than a full month under the system of monthly payment of fixed rates, the payment for that month shall be calculated as follows:

When current was used for less than 15 days, it shall be determined as a half months payment; and when current was used for more than 16 days, it is a full month's payment.

Article XL. When an accurate inspection of the meter is impossible

due to breakdown of the watt-hour meter, the wattage used shall be determined by the larger amount of the average power used during the preceding three months before the period of that account and the actual results of the corresponding month in the preceding year. When there is a marked difference in the percentages of burden. The amount shall be

figured out by taking the equipment at the place  
of use and the condition of use into consideration.

Article XLI. When the fact of steal or misuse of current is  
confirmed, the rates unpaid due to that fact shall  
be collected as follows:

1. Wattage stolen

It shall be figured out by multiplying the capacity  
stolen with the hours used according to the following  
standard:

(1) Home use

Electric lamp	Daily standard hours used	14 hours
Radio	"	7 "
Electric heat	"	6 "
Electrified room	"	24 "
	(ondol)	

(2) Industrial use

The number of hours used shall be figured out  
by taking the working hours and the use of current  
into consideration.

(3) When, in the course of illegal use of current of  
by change of meter apparatus, the wattage used  
is not clear, it shall be regarded as having  
used the total apparatus 24 hours per day.

(4) When the period of steal and misuse is not clear,  
it shall be determined as six months.

2. Rates on steal

An amount not exceeding five times the maximum amount  
of electric rates of the same kind shall be collected  
as rates on wattage stolen.

Article XLIII. The basic rates of power for summer use shall be collected in the amount corresponding to three months' rates when the period of use is less than three months.

Article XLIII. For private users inside the electrical structures, the ordinary rates shall be applied to electric lamps and electric heat used at their attached homes outside the places provided for in Article XXI.

Article XLIV. When a user delayed payment of rates, he shall pay arrears which is to be figured out from the fifty day after the request for payment in accordance with Article XXXVIII.

Article XLV. When the supply of current, provided for in Article XXIX, stopped more than 24 hours continually, the basic amount of fixed electric rates and meter rates shall be deducted from the rates of that month by adding up the number of corresponding days. In this case, one month shall be counted as 30 days, and the fraction amount of less than one 'chön' shall be counted as one 'chön' when the fraction is more than .5, and cut away when less.

Article XLVI. When the tariff change after the rates have been figured out, an accurate settlement shall be made at the time of the next calculation.

Article XLVII. The supply organ may demand the user to offer a guarantor or a sum of guarantee money when necessary.

Supplementary Rules. The present regulations shall become effective from 1 January 1949,  
The existing users at the time of enforcement of the present regulations shall be regarded as having applied for the supply of electricity.

Pyöngyang  
29 December 1948

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KIM Ch'aek  
Minister of Industry the Democratic  
People's Republic of Korea

## ELECTRIC TARIFF

<u>Kind</u>	<u>Item</u>	<u>New rates</u>	<u>Old rates</u>
Fixed rate lamp	per lamp per month		
"	(12.5W)	700	
"	(20 W)	800	
"	(30 W)	900	
"	(40 W)	1000	
"	(60 W)	1500	
"	(100W)	2500	
Meter lamp	basic rates (per lamp per month)	3250	250
"	power rates (1 KW H)	150	200
Temporary lamp	per lamp per day (20W or less)	150	
"	(40W " )	200	
"	(60W " )	300	
"	(100W " )	400	
Power	basic rates		
"	(From 1 KW up to 50 KW per month)	5000	3000
"	( " 50 " 100 " )	3000	700
"	( " 100 " 200 " )	1500	600
"	( " 200 " 350 " )	1000	550
"	( " 350 " 500 " )	1000	500
"	( " 500 " 750 " )	700	450
"	( " 750 " 1000 " )	700	400
"	( " 1000 " 2000 " )	600	350
"	( " 2000 " 3500 " )	500	300
"	( " 3500 " 5000 " )	500	250
"	( " 5000 " 10,000 " )	400	
"	(above 1,000,000 KW " )	300	
"	power rates		
"	(from 1 KWH up to 2500 KWH per month)	20	
"	( " 25,000 " 50,000 " )	12	
"	( " 50,000 " 100,000 " )	08	09
"	( " 100,000 " 200,000 " )	06	07
"	( " 200,000 " 500,000 " )	05	06
"	( " 500,000 " 1,000,000 " )	04	05
"	(above 1,000,000 KWH " )	03	04
Temporary power, adding 50 percent of ordinary rates up to one month.	" 30 "		two months.
" 20 "			three months.
Equal to ordinary rates above three months.			
Electric heat, basic rates (MP 1 KW per month)		1000	500
" (KWH " )		100	50
Fixed rate radio per set per month		500	500
" iron " (home use only)		1000	1000
" clock " "		500	500
Fee Location of side-line, lamplight, and heat		2000	3000
per side-line 1 ☞			
" power " "		cost price	cost price
Installation, dismantling, and changing location of meter.			
low voltage		2000	3000
high voltage		6000	5000

Fee	Installation, dismantling, changing location of lamp and heat		
	per lamp & per iron	2000	2000
	Cutting and reinstalling fee (lamp) per case	1000	cost price
	" (power) "	10000	10,000
	" (heat) "	2000	6,000
	Test Fee (lamp light and heat) per lamp	2000	2,000
	Installation of motor, transformer, and distributing line		
	per piece per case low voltage	6000	6,000
	" high voltage	10000	10,000
Gas	per socket per month	200	
	" " three months	160	